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THE BRITISH PTERIDOLOGICAL SOCIETY

BULLETIN

edited by

M H RICKARD

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1979

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THE BRITISH PTERIDOLOGICAL SOCIETY

Officers and Committee for 1979

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Bulletin	M.H. Rickard, *9 Hammond Close, Pampisford, Cambridgeshire CB2 4EP* *assisted by* J.W. Dyce.
British Fern Distribution Recorder	A.R. Busby, *Dept. of Biological Sciences,* *University of Aston, Gosta Green, Birmingham B4 7ET*
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The *Fern Gazette* and the *Bulletin* are the journals of the British Pteridological Society, published annually. The Gazette publishes matter chiefly of specialist interest on international pteridology, the Bulletin topics of more general appeal.

The BRITISH PTERIDOLOGICAL SOCIETY was founded in 1891 and today continues as a focus for fern enthusiasts. It provides a wide range of information about ferns through the medium of its publications and available literature. It also organises formal talks, informal discussions, field meetings, garden visits, searches for rare fern books, plant exchanges and a spore-exchange scheme. The Society has a wide membership which includes gardeners, nurserymen and botanists, both amateur and professional, in Britain and overseas. Articles for the Society's publications are received from, and reflect the interests of, Society members.

Membership is open to all interested in ferns and fern-allies, worldwide. Subscription rates (due on 1st January each year) are: Full Personal Members £4; Personal members not receiving the Fern Gazette £3; Student Members (full-time students under the age of 25) £3; Subscribing Institutions £5. Applications for membership should be sent to the Membership Secretary (address above), from whom further details can be obtained. (Remittances made in currencies other than Sterling are £0.50 extra, to cover bank conversion charges.)

Back numbers of the *Gazette* and *Bulletin* are available for purchase from the President (address above), from whom further details can be obtained.

THE BULLETIN

OF THE

BRITISH PTERIDOLOGICAL SOCIETY

Vol 2 1979 No 1

EDITORIAL

With this issue of the *Bulletin* we begin Volume 2. This is not, in itself, a momentous statement but it does coincide with the beginning of a new era. Our former Editor, Jimmy Dyce, has retired after a total of 16 years developing this journal and its predecessor the *Newsletter.*

To take over as Editor in Jimmy's place is a real challenge, particularly if the past high standard is going to be maintained. Fortunately, the transition is being made relatively painless as Jimmy has willingly agreed to act as Editorial Assistant for the time being. In addition he has written a large part of the substance of this issue — reminiscent of Druery's valuable support to the early *Gazette.* Dependence on Jimmy cannot, however, go on forever and I hope that in the future more members will come forward with items for inclusion.

Contributions, suggestions and even criticism (constructive!) are all welcome, but please do not leave them until the last moment. It would greatly ease the editorial task, if, where possible, matter for publication could be sent in by the 30th June.

PRESIDENTIAL NOTES

I have now retired from the hurly-burly of secretarial and editorial duties — at least this is theoretically correct; in practice I find I still get involved to some extent in the day to day workings of the Society. This, of course, is understandable and will gradually phase out as my successors find their own feet and all the work gets routed direct to them.

Matt Busby is already coping well with the secretaryship and only very seldom does he need to refer anything to me; Martin Rickard now has his first *Bulletin* behind him and I think you will agree with me that he has made a very good job of it. He has even coaxed papers for it out of members whom I was never able to inveigle into print! I look forward to seeing the *Bulletin* increase in stature and in its contribution to the life of the Society in the years to come. I wish both Matt and Martin every success in the jobs they have taken over and I hope to be in the background for many years yet to come — they may continue to find me useful at times!

I have had a most rewarding life as your Secretary — for me it has been a way of life which has been enriched by many good friendships worldwide. I sincerely hope that I shall still continue to hear from these many friends from time to time even though I have slipped out of the limelight.

I am very proud to be your President and happy that the close links with you all are to continue; I thank the Society for conferring this honour on me. I can truly say that I have risen through the ranks to this high position. I began humbly in 1935 as a very raw recruit, and by virtue of my job in life, banking, was elected Auditor at the first meeting I attended!

After the last war I became Treasurer at a very difficult period in the Society's history, then to this office I added that of Secretary in 1959, followed a few years later by the editorship of the *Newsletter* which later gave way to the *Bulletin.* Next came BPS Booksales which started in a very small way, so life was indeed committed and hectic — but very very enjoyable! Alas! the years pass and take their toll, and now the torch is in other hands and still burning strongly. Some years ago I was honoured by being awarded the Society's Stansfield Medal in recognition of my services, and now I hold the ultimate honour, the Presidency.

I have seen the Society grow from small beginnings, and through good times and bad. It is still growing and I think its feet are now firmly set on the right road — long may they continue to be so, helped on their way by the same dedication in its officers, which has brought it so far, a dedication inspired in some strange way by that love of ferns which binds us together.

SECRETARIAL NOTES

Having taken over the Secretary's pen from Jimmy Dyce my first task must be to explain my use of two addresses. Secretarial headquarters is my home address from which I can deal much more quickly with general Society correspondence and other matters. However, as Recorder for Fern Distribution, a volume of correspondence not related to the Society reaches me and this I can handle much more conveniently from my University of Aston address. Both addresses appear on the front inside covers of our two journals.

MEETINGS — Meeting Cards for 1980 are enclosed with this *Bulletin* to all inland members. Overseas members, visiting Britain, can obtain them on application to the Meetings Secretary.

PUBLICATIONS BY AIRMAIL. Our journals can be sent by airmail to overseas members, provided they advise the Membership Secretary and pay an additional subscription to cover airmail postage. *Please note* that with the increase this year in postal rates, the additional amount now required is £2.00 for full members and £1.00 for those receiving only the *Bulletin.* The amounts should be sent with your annual dues.

READING CIRCLE — *The American Fern Journal,* a quarterly containing much information for those seriously interested in ferns, is circulated to Reading Circle members. To join, apply to Mrs Mary Potts, 4 Kennel Lane, Webbington, near Axbridge, Somerset.

WANTED — A new Meetings Secretary. Tony Worland has notified the Committee that he would like to resign as Meetings Secretary at the AGM in February 1980. I am sure that all members who attend our meetings will join us in thanking him for the splendid job he has done over several years. We must now find a successor — can you help or suggest someone whom you think could tackle this responsible job successfully? Please let me know.

GRANTS FROM THE GREENFIELD FUND — See **Meetings Programme** — Fern Course at Slapton, Devon 6-13 August 1980. Under certain conditions the Society is prepared to consider giving grants towards the cost of this course. Interested applicants should apply to me for further information.

REPRESENTATIVES AT MEETINGS. The Society subscribes to several organisations and we are invited to send representatives to their meetings – usually in the London area. If any member from that area would be interested in attending these meetings as our "eyes and ears" please let me know.

SUBSCRIPTIONS. You will find below an appeal from the Membership Secretary asking for subscriptions to be paid promptly **(they are due on the 1st January).** We endorse this appeal and have to remind members that we now take a strong line – **no journals are sent until dues are fully paid.** If you have not received last year's *Fern Gazette,* or this *Bulletin* is late in reaching you, the reason possibly lies with you – HAVE YOU PAID YOUR SUBSCRIPTION? You will find details of the amount required on the inside front covers of both journals.

I look forward to meeting more of our members during the meetings in 1980 – if I do not already know you please do not remain in the background. Like Jimmy Dyce, my ambition is to get to know personally as many of our members as possible, so do not hesitate to come forward and introduce yourself.

SUBSCRIPTIONS. AN APPEAL

Membership Secretary

We have over 500 Members & Subscribers. Many pay their subscriptions by bankers order or through agents. To get the subcriptions out of the remainder over 200 first and second reminders had to be sent out in March and April and some subscriptions are still outstanding.

This really is an unnecessary waste of money and time and I do appeal to all those concerned to be more cooperative. All subscriptions are due on the 1st January.

TREASURER'S REPORT

For the third year running our income from subscriptions roughly equalled our expenditure. Peripheral sales have once again been the source of additional funds that have swelled our reserves. Printing costs of both the *Gazette* and the *Bulletin* increased dramatically as did postage, but we hope that any further increases will not be as great in the coming year. Providing our expenditure does not escalate our subscription rates should suffice at their current values for a while longer. The available money in the Greenfield Fund has now increased to £193.

(You will see from the above note that the available money in the Greenfield fund has now risen to nearly £200. Any member who feels he/she can use part of this money on a suitable ferny subject should apply in the first instance to Matt Busby. See also Fern course at Slapton in the 1980 programme).

FINANCIAL STATEMENT AS AT 31 DECEMBER 1978

ORDINARY ACCOUNT

Income

1977			
£1808.65	Subscriptions		2564.72
	Sales –		
177.50	Gazettes, Newsletters, Bulletins	146.50	
498.30	Hardy Ferns (Profits)	65.00	
110.00	Offprints (article sales to authors)	99.92	
	Book sales (Profits)	40.00	
38.15	Sundries	3.75	
			355.17
	Interest on Deposit Accounts –		
	Bank of Scotland	35.70	
	Greenwich Building Society	56.35	
			92.05
			£ 3011.94

Expenditure

£ 282.00	Metloc a/c Bulletin Vol 1 No 6	368.00
975.00	Econoprint a/c Gazette Vol 11 Part 6	1300.00
168.05	Printing and Stationery	204.18
469.13	Administrative Expenses and Postage	538.78
25.60	Subscriptions to Societies	26.10
5.86	Bank charges on Current Account	6.48
16.62	Indoor meeting costs	5.00
		£ 2448.54

816.08	Excess of income over expenditure	563.40
269.29	Balance carried forward from December 1977	1029.37
	Balance carried forward in Ordinary Account	£ 1592.77

PUBLICATIONS ACCOUNT

Balance carried forward from 1977	£ 1000.00

GREENFIELD FUND

Balance carried forward from 1977	1115.45
Interest	77.56
Balance carried forward	£ 1193.01

Audited by J Cramp and J Moulton

THE ANNUAL GENERAL MEETING – 10 FEBRUARY 1979

The 76th AGM of the Society was held at the British Museum (Natural History) in London at 2.15 pm, with a record attendance of 52 members. The President, Dr. Stanley Walker, was in the Chair.

The Secretary reported there was very little change from last year. An increase in the membership of 67 new members was largely cancelled out by resignations and "drop-outs", plus a number of doubtful members, leaving the effective membership practically unchanged at around 500.

The Treasurer's Report and the Financial Statement, show that our finances continue sound.

We again had problems with the *Fern Gazette* which, in spite of promises by the printers, was seven months overdue and appeared only a matter of days before this meeting. We should have no recurrence of this trouble, however, for we now have new printers as well as a business manager in J W Grimes who is on the spot to deal with any problems, leaving the Editor more time to deal with editorial matters. The 1979 issue of the *Gazette* is already well advanced.

It was reported that we have now exhausted our stocks of Reginald Kaye's book *Hardy Ferns*, and we are now waiting to get the remaining 300 to 400 copies bound. The *Atlas of Ferns of the British Isles* is now available and was in use by members at field meetings during the year.

Big changes were made in our governing body. Dr. Stanley Walker completed his three years in the office of President and J W Dyce retired after serving 20 years as Secretary; he also retired from the editorship of the *Bulletin* after seeing the first volume of 6 issues completed, preceded by 10 issues of the *Newsletter*. He was elected to replace Dr. Walker as President. A R Busby becomes our new Secretary and M H Rickard the new Editor of the *Bulletin*. Dr. Walker was elected a Vice-President of the Society. The other Officers remain unchanged. H J Bruty and R F Cartwright retired from the Committee after their "stint" in office; M H Rickard, on his appointment as *Bulletin* Editor, also came off, leaving 3 vacancies which were filled by J A Crabbe, Mrs B S Croxall and N A Hall.

After the formal business was over the retiring President gave his "farewell" talk. Dr. Walker's chosen theme was "From Ferns to Man", and he told us how he started his career as a fern botanist specialising in genetical research and how this eventually got him involved in research in human genetics. He is now the Director of the Cytogenetics Unit in the School of Medicine at the University of Liverpool. With the aid of slides he gave us a most lucid and absorbing talk, showing how the effect of genes inherited from the parents can determine the health of children throughout life. He chose mongolism as an example to demonstrate his subject, and rarely have we had such an attentive and intensely interested audience at any of our Society meetings.

MEETINGS 1979 J W DYCE

INDOOR MEETINGS

The Spring Indoor Meeting on 10 February followed the AGM held at the British Museum (Natural History). It was most pleasing to have what is possibly a record attendance – 52 members were present. The meeting took the usual form of a conversazione, with a variety of exhibits and light refreshments. Stanley Walker had an exhibit dealing with the *Dryopteris austriaca* complex and Mary Gibby had many herbarium fronds of dryopteris species. Matt Busby showed a selection of fronds collected from fern varieties still existing in the garden of E J Lowe's old home, Shirenewton Hall, Monmouthshire, which he visited last year. Some members brought plants to sell for Society funds and BPS Booksales had books for sale and on exhibition. John Woodhams gave an interesting talk, illustrated by slides, on his visit to Guyana last year.

The Autumn Indoor Meeting on 13 October was held at the Chelsea Physic Garden in London from 1.30 pm which allowed time before the meeting proper began for members to look around this very interesting garden and greenhouses, and also view the various exhibits indoors. Among them were old herbarium sheets from the Thomas Moore collection housed at the Garden. A selection of fern books was on sale as well as fern plants in pots. Over 30 members assembled to hear Clive Jermy give a very interesting talk, accompanied by slides, on his visit last year to China and the ferns seen there. This was followed by tea and biscuits and more informal chat before the meeting broke up about 5 pm.

DAY MEETINGS

Kew Gardens - 19 May. The popularity of this annual visit to the Fern Houses continues unabated and this year 40 members and friends attended. We were blessed with warm summery weather which made the heat of the Tropical Fern House rather oppressive but this did not deter the assembled company. After a very informative talk and demonstration on growing platyceriums by John Woodhams they bravely endured the heat and humidity to hear John and Professor Holttum expound on the various ferns of interest. But it was a relief to emerge into the open again and pass on to the Temperate House. A short visit to the Filmy House followed and it was interesting to note how this House has matured over the years (about 18) since it was built. For a long time the ferns were very reluctant to grow on the high back wall but now both it and the floor space are well covered with a large selection of filmy ferns and it has become a veritable ferny jungle. We finished with a visit to the Fern Propagating House where again John and the Professor had much to tell us. The day ended in our "traditional" way with a visit to the Holttum residence which is only a few minutes walk from the Gardens. Here Mrs Holttum coped in her usual efficient manner with an invasion of thirsty people who did full justice to her tea with hot scones, cakes and other good things. She confesses that she gets much help from Joan Woodhams, and to both of them and to the Professor who was diligent in his handing round of the scones and cakes, we express our very appreciative thanks for this very delightful finish to a good day.

Cambridge Botanic Gardens - 23 June. We had an attendance of 13 members and friends who assembled at the Trumpington Road entrance to the Gardens. Martin Rickard led us round and we visited the fern borders and also the glass houses. There did not appear to be as many outdoor ferns as during our last visit. One instructive exhibit seen was the planting of the three species of polypody, *Polypodium australe, P. interjectum,* and *P. vulgare,* which showed up well the differences between them. Afterwards, we went on to Pampisford to see Martin's ferns, and were entertained to tea and cakes in his garden in warm pleasant sunshine. Martin is amassing a very interesting collection of ferns, including many varieties, and the visit was very much enjoyed by everyone, particularly as many of us went home with some of Martin's spare plants. We have to thank Martin and Hazel for providing us with such an enjoyable day.

Liverpool Botanic Gardens - 4 August. On a warm sunny afternoon a week after the Edinburgh weekend meeting I was in Liverpool for the day meeting in the Botanic Gardens. After the poor attendance in the Scottish Capital it was very pleasing to meet a party of 16 which included 10 members. We were welcomed by the Curator of the Fern Houses, Mr J K Muir, and shown the many ferns of interest, all of which are under glass. Only this year has an outdoor border for hardy ferns and varieties been added but not all the plants are at present looking too happy. There are many good things in the border and I think that, given time, they could do well - more shade would help a lot.

Norfolk - 19 August. Twentyone members and friends (including four children) attended this meeting. In the morning the area to the landward side of the dunes at Horsey (Nat.Grid ref.63/42) was examined. Here we recorded *Dryopteris cristata, D. carthusiana, D. dilatata* with the two hybrids, *D. X uliginosa* and *D. X deweveri* and single plants of *D. filix-mas, Osmunda regalis* and *Athyrium filix-femina* and a few colonies of *Polypodium vulgare.* After lunch we moved on to Hickling Broad National Nature Reserve, investigating the area near Swim Coots (63/42). Here similar ferns were seen except that we could not find *D. X uliginosa* or *P. vulgare.* We did add, however, *Thelypteris thelypteroides, P. interjectum* and *Equisetum arvense* to the morning's total. From here we rushed on down lanes lined with polypodiums to another piece of fen at Horning (63/31) where a further colony of *D. cristata* was known. This fern was quickly located despite the hazards of crossing a treacherous dyke which deterred some of our party! It was growing near *Ophioglossum vulgatam, Blechnum spicant, T. thelypteroides* and several plants of both *D. X uliginosa* and *D. X deweveri* with their respective parents.

As a fitting end to the day several members were kindly given plants from a fine form of *Asplenium scolopendrium* 'Crispum' growing luxuriantly in a nearby garden.

REGIONAL DAY MEETINGS

Our two regional meetings organisers have been really active again this year and have provided interesting programmes to attract their local — and many not so local — members. It is most pleasing to add that we now have a third organiser, or organisers, in Nigel Hall assisted by Nick Hards, for the north-west of England. They volunteered for the task this spring and could not wait till next year to be officially announced in the Meetings Programme, but circulated the news privately among local members and "took off" — very successfully. Nigel's report appears here.

North-west England. As yet, a north-west group does not exist but this year a small number of members arranged some activities. It is hoped that this will be the beginning of a regional group on the lines of the existing groups. Interested members are invited to write to Nigel Hall, 3 Sydney Road, Bramhall, Stockport, Cheshire SK7 1NH, who is willing, in the first instance, to act as a co-ordinator.

Four members and a guest met at Ribchester at 14 July and explored woodlands on the south side of the Ribble. About 14 typical woodland ferns and fern allies were found.

At the end of July Nick Hards and Nigel Hall put on a substantial display at the Manchester Show. Interest was considerable and an unsolicited, amusing but fair and accurate article appeared in the Manchester Evening News. The article brought several specific enquiries about membership and we believe that at least two people will join as a result of the Show.

After the meeting held at the Liverpool Botanic Gardens on 4 August, seven members ended up at Nigel Hall's house and talked and drank ferns until the energies of all, except the President (!!? Was it "ferns" I was drinking? – Pres.), began to flag sometime early next morning.

On 18/19 August three members explored some areas around Kendal, visiting Langdale on the Saturday and Whitbarrow on the Sunday.

West Midlands. Matt Busby is even more loaded than usual with fern duties this year – for the Society, his University and other bodies. He is a glutton for punishment! As most members will by this time know, he has taken over from me the job of General Secretary of the Society, not exactly a sinecure even though some of my work has been divorced from the secretaryship and farmed out to other willing members. Matt continues to give fern talks to various clubs and societies and stages fern exhibits at shows; in addition he has accepted the important post of Recorder for Fern Distribution in the British Isles and is responsible for the sorting and publishing of all new fern records received not only from our own members but from those of the large and very active Botanical Society of the British Isles and other sources. On top of all this he continues to organise the West Midlands regional meetings and I append his report for the year.

On Saturday 12 May, 9 members and friends spent a day visiting Birmingham's botanical gardens, beginning with Birmingham University Gardens at Winterbourne (by kind permission of Professor J G Hawkes). A visit here is always a delight because it has always something of interest at any time of the year. Its solitude is all the more surprising when you realise that it is only a mile and a half from the City centre. Due to the extremely late spring this year the hardy fern collection had not reached full foliage, but in spite of this there was plenty for members to see and comment on. The indoor collection has improved greatly during the past year now that they have a staff member with an interest in ferns. David Lear, the deputy superintendent, has maintained the improvement in recent months, guided by David Radley, the Garden's curator, and further encouraged by my frequent visits.

After Winterbourne we moved on to lunch and an afternoon at the Birmingham Botanical Gardens in Westbourne Road, Edgbaston. These gardens boasted an extensive collection of tropical ferns 120 years ago but today only a small collection of indoor ones is left; it includes a specimen of the hybrid tree fern *Dicksonia X lathomi* which, according to Schneider's book *Choice Ferns for Amateurs*, page 209, is the result of a cross between *D. antarctica* and *D. arborescens.* At the moment I am studying Lathom's biography in an endeavour to find some information about his tree fern.

The day ended with refreshments and a visit to the fern house at Aston University.

On Sunday 17 June, 16 local members and friends visited Alan and Valerie Ogden's garden at Hopwood, Alvechurch near Birmingham for their first open day. Alan's interest in ferns and fern growing has developed during the last 6 years or so, and although his plants are still relatively young the collection is quite large. Members were entertained with a buffet meal and much fern chat. Alan displayed a number of recent acquisitions still in pots and members toured the garden where our host enthusiastically discussed his plans for a new fern border, and what further gems he would like to see in his rapidly expanding collection. May I, on behalf of everyone who attended, thank Alan and Valerie for giving us a most rewarding day.

It was a pleasing surprise to see Gwladys Tonge and her garden at the Old Post Office, Withybrook, featured on BBC Television Midlands programme, "The Garden Game", with Norman Painting. It was a pity that only a few moments were given to this small but obviously fascinating garden. Her ferns were very evident but it was also a treasury of other choice plants and shrubs. Gwladys has now moved to Buckinghamshire and we in the Midlands have lost a skilled gardener and author.

South-west England. Mary Potts successfully incorporated two meetings into one this year – she volunteered to organise and lead a weekend meeting in her area for the Society's meetings programme on the weekend 29 June/1 July, and arranged to have her regional "At home" meeting on the Sunday of the same weekend. This good idea paid off and resulted in an excellent attendance. The combined meeting is reported by me under **Weekend Meetings**, so I don't need to say much more about it here, except to add some of Mary's comments which reached me after my report was completed. She reminds me that thanks are due to Len Cram, Chairman of the Mendip Society, who provided the reference which enabled us to find so easily the colony of *Ophioglossum vulgatum.* Also, near the lakes are some colonies of *Cystopteris fragilis* growing in the horizontal tunnels excavated by the lead miners in Victorian times. Concerning our visit to Bristol Botanic Gardens she mentions, too, the large plants of *Woodwardia radicans* which we admired, and the protection given by a large sheet of polythene to a planting of ferns in a wall – with this help against evaporation the plants are establishing well. Mark Smith of the Gardens was unable to be with us and thanks are due to him for permitting our visit.

I append Mary's reports on the other two meetings in her programme –

Peter Gates' Fern Day – 14 July. Ten members and friends attended this meeting, centred on the Gates' home at Abercraf in South Wales. Shortly after our arrival we were treated to the (to me) hair-raising experience of Barbara quelling a swarm of bees with a jet of water from the garden hose. Retreating from this apiarist's paradise we investigated the banks of the River Tawe but, unfortunately, they were rather overgrown and we were only able to note the ubiquitous *Pteridium aquilinum* and a few plants of *Dryopteris carthusiana.* After an excellent lunch kindly provided by our hosts, the party drove to the River Neath, some 5 miles away and running through Forestry Commission land. The part of the river which we explored ran through a wide ravine with cliffs some 20 to 30 feet high on either side, providing an excellent situation for a wide variety of different species of fern. An interesting and unusual juxtaposition of species was noticed in a few places; *Polystichum aculeatum* growing a few inches away from the calcifuge *Blechnum spicant,* both appearing to flourish in the cracks and on the ledges of cliffs down which limy water seeped. A diligent search was made for filmy ferns on the moist cliffs and rocks overhanging the river but we were unrewarded. After returning for tea we were all the lucky recipients of small plants of *P. setiferum* 'Divisilobum Madame Adeline Patti', grown from bulbils from a fine plant in Peter's garden, and so named by Jimmy Dyce to commemorate the famous opera singer who had lived in the vicinity. Many crowns of this excellent proliferous variety had "escaped" from her garden into some of the village gardens and are treasured by their owners as "Madame Patti's fern". No doubt this fern is one of the old varieties which had a name but this has long since been lost, if indeed it ever was grown by name in the garden. It seems fitting therefore to adopt the name given by the villagers.

We thank Peter and Barbara for providing us with such a happy and successful day.

Philip Coke's Fern Day – 11 August. This visit to Philip's garden at Stinchcombe in Gloucestershire appears to be becoming an annual and popular event, with 23 members and friends attending. Philip was able to show us a very good collection of hardy species and varieties, both British and foreign. Particularly noticeable were a fine plant of *Polystichum lonchitis* with fronds well over a foot long and good varieties of *Asplenium scolopendrium.* Also there were large plants of *Adiantum pedatum* and *A. pedatum* 'Aleuticum', both highly ornamental hardy ferns of low stature that always draw favourable comments from visitors to this garden. In the greenhouse and conservatory we admired some fine varieties of variegated *Adiantum capillus-veneris,* as well as some sporelings of various adiantums originally brought back from Philip's Australian visit. Another plant which caught my eye was a good *P. setiferum* variety, progeny of 'Bevis', with very fine pinnules and drooping fronds. The adiantums have been kept in good condition and free from blackfly – often a very troublesome pest on this species of fern – by the ingenious use of Vapona, a brand of domestic fly killer, which is simply hung a few feet over the plants. (We immediately tried this remedy in our own greenhouse with excellent results, much more successful and less harmful than spraying with insecticide).

We would like to thank Mary Coke for again providing us with an excellent lunch and making us all feel so welcome.

We were again fortunate in having good weather for all three days and this, together with the generosity of our hosts, (including Christopher and Mary Potts' own – JWD), the good attendance of members and plenty to see and discuss, made for a successful programme. Quite a few new members attended the meetings, and many plants were exchanged along with differing ideas on cultivation and nomenclature – not to mention hints on cooking, brewing and winemaking! (Mary makes some excellent wines, to which I do full justice! – JWD). We hope to arrange an equally interesting and varied programme for next year and look forward to welcoming new members as well as those unable to attend this year.

WEEKEND MEETINGS

North Somerset - 29 June/1 July. This was a link-up of two meetings, the Society one appearing in the Annual Programme and Mary Potts "At Home" regional day meeting on the Sunday. Mary and Chris were our leaders and gathered together a party of 10 members who had assembled in the Square at Axbridge on a rather cold but dry day. We moved off up Cheddar Gorge (31/45) to the Black Rock area near the top. Along the path and on the rocky slopes we recorded 12 ferns, among them much *Cystopteris fragilis, Gymocarpium robertianum, Asplenium scolopendrium* and *Polystichum aculeatum.* A common fern was *A. trichomanes* and we noted the subspecies *quadrivalens* in some places. *Pteridium aquilinum* was widespread throughout the area. Moving northwards from Black Rock we walked through the Long Wood which is the home of many ferns, chiefly the larger growing woodland species. Here again 12 species were noted, most of them similar to the Black Rock population. *Athyrium filix-femina* was abundant and exceptionally large and one very tall upright specimen was an excellent very long pinnuled 'Incisum'. *Dryopteris filix-mas* was common and a few plants of *D. pseudomas* were seen. There was both *P. aculeatum* and *P. setiferum.* A short exploratory walk was made towards Velvet Bottom and here we found abundant *D. filix-mas.* On a stony slope grew *A. ceterach* and in some marshy ground was *Equisetum arvense* and very prolific *E. palustre.* In this small area were 10 species of fern and 2 allies.

On Sunday, the day of the combined meeting, our numbers were swelled by an additional 11 members to make the number 21. Our hunting ground in the morning was in a most interesting old lead-mining area at Charterhouse (31/55) not far removed from where we had been on the previous day. The ground was a jumble of low limestone cliffs, great boulders and deep hollows and abounded with ferns - 13 species were found, the limestone ones predominating. *D. filix-mas* was very common, also *A. ruta-muraria, A. trichomanes, C. fragilis* and *A. scolopendrium.* A colony of what appeared to be *Polypodium australe* was seen on a cliff but it has since been identified as very wide lush growing *P. interjectum.* A feature of the area was large clumps of *P. aculeatum* with distinctive bright yellow fronds, very strong-growing. Presumably the colour was caused by some element in the soil - could it be lead? On a grass slope were several colonies of *Ophioglossum vulgatum,* spreading extensively through the grass along the edges of a path. On lower ground a short distance away water had accummulated to form small lakes and one was completely overgrown with a luxuriant colony of *E. fluviatile,* along with *E. arvense* lining the margin; *E. palustre* was also seen.

After the morning's hunting we returned to Webbington for a buffet lunch with the Potts. They had laid on a magnificent "spread" which, accompanied by home-made wine and beer, was greatly enjoyed. Afterwards, the final visit of the day, and the weekend, was to Bristol Botanic Garden to see the ferns and the many fine varieties they grow. We were most appreciative of the efforts of Mary and Christopher Potts and the entertainment provided by them and we thank them warmly for an excellent weekend which was enjoyed in dry weather, although somewhat cold on the Saturday.

Edinburgh - 27/29 July. It is a pity that distance and costs of travel from the south deterred southern members on whom the success of **all** our field meetings largely depends, from attending this meeting. They missed something good! Only Peter Edwards from Kew Botanic Gardens and I attended from south of the Border and Jean Castle-Smith came from Perthshire. Our leader was Dr Chris Page from Edinburgh Botanic Garden.

On Saturday we travelled to Dollar on the southern edge of the Ochil Hills (26/99) to explore Dollar Glen, a narrow deep ravine worn into the hillside by the Burn of Sorrow. On the approaches through the town 8 ferns, all of them the more common ones, were recorded and they included *Dryopteris pseudomas,* re-establishing a pre-1950 record, and a large colony of *Equisetum telmateia.* Entering the Glen excitement mounted, for we quickly found some plants of a tall vigorous *D. filix-mas* which suggested hybridity with *D. oreades.* With it was *D. X tavelii,* very obviously so, but a little further on some plants of what appeared to be the same hybrid, yet quite different and without the characteristic dark base to the pinnae, were seen. The behaviour of the male ferns here made it very evident that there still remain many problems to be solved in the dryopteris complex. Those presented by the ferns in Dollar Glen are recognised by Chris Page who is going to have them investigated and we can expect him to publish his findings in due course.

We found 15 species in the Glen which is a fern paradise, but unfortunately far from accessible throughout most of its length, compelling us to remain on the path. The male ferns, both *D. filix-mas* and *D. pseudomas,* and lady ferns were the most abundant, and the latter were also very large-growing with some fine incised specimens among them. The other species seen were *Asplenium scolopendrium, A. trichomanes, Cystopteris fragilis, D. dilatata, Gymnocarpium dryopteris, Oreopteris limbosperma, Phegopteris connectilis, Polypodium interjectum, P. vulgare* agg., *Polystichum aculeatum* and *Pteridium aquilinum.*

Rain drove us home earlier than we had planned but this enabled us to fit in a visit to the Edinburgh Botanic Garden where Chris showed us his large collection of equisetums and some of his experimental work on ferns in the glasshouses. Some of his hybrids were of the greatest interest but this is something which he himself must write about in due course when experiments are concluded. I cannot help feeling, however, that his writings on these matters lag far behind the recorded findings resulting from his immense work programme.

On Sunday we visited Roslin Glen (36/26), near Penicuik to the south of Edinburgh, where the River North Esk flows through a deep and ferny ravine, a somewhat similar locality to Dollar Glen. Again the terrain was not suitable for detailed search, with steep rock slopes rising straight from the river, but we found 11 ferns and 3 horsetails. Some of the ferns were very large-growing and in great abundance, particularly the lady ferns and *D. dilatata;* many good specimens of var. *incisum* were noted among the former. *Blechnum spicant* was common and both *D. filix-mas* and *D. pseudomas* were there along with the hybrid *D. X tavelii.* On the steep slopes we noted *G. dryopteris* and *A. scolopendrium,* also *P. vulgare* agg. In the more open places was *O. limbosperma* and on some wet ground above the ravine were two large colonies of *E. telmateia.* At the entrance to the Glen was a large colony of *E. hyemale* which seemed to be spreading everywhere over the damp slopes.

Chepstow 7/9 September. We had an excellent turnout of 29 members and friends at this our last field meeting for the year, centred on Chepstow in Gwent and led by Matt Busby. He had enlisted the aid of the plant recorder for the county, Trevor Evans, and between them they led us to many interesting places and showed us many ferns - in all we recorded 19 species. A few varieties were also recorded – quite a good *Asplenium scolopendrium* 'Ramosum' by Martin Rickard near his camp site at Mounton on the evening of his arrival, some *A. scolopendrium* narrow marginatums with crisped indented edges near Tintern and a fairly extensive colony of *Polypodium interjectum* 'Serratum'.

On the Saturday morning we travelled up the Wye valley to Black Cliff (31/59), a most exciting rocky and wooded slope where 10 species were recorded, the common ones being *A. scolopendrium,* the male ferns, polypodies and polystichums. There were some very good decompositum forms of *P. setiferum* and some very remarkable *Dryopteris dilatata,* very tall, upright and slim. *P. interjectum* grew over the rocks. The terrain was very rough and full of interest and we could happily have spent much more time exploring it fully. Our second stop was at Buckle Wood (32/50) further north near Abbey Chappel Hill. Above the road the woods had been cut and on the steep open hillside 9 fern species were seen. The common one was *Athyrium filix-femina*; the male ferns were also abundant and several plants of *D. X tavelii* were found. *P. setiferum* looked interesting to the variety hunters who felt that with more time to search fully something good could be found. On the lower side of the road a stream ran through the wood, providing a damper habitat, and the additon of *Gymnocarpium dryopteris, Oreopteris limbosperma* and *P. interjectum* brought the total records to 12. The hybrid *D. X tavelii* abounded here and on the walls of a dam was a curtain of *P. interjectum,* some of it with serrate fronds. An unusual form of what seemed to be *D. X tavelii* was found, all the fronds having the upper half of the rachis deeply channelled.

We retraced our steps to Tintern for a pub lunch, after which an unfortunate chance split the party and we were unable to make contact again. The main party went north to the Forest of Dean while the "lost" section returned to the Tintern area (32/50), exploring the walls around the Abbey for *P. australe* and also visiting the high ground on the opposite side of the river at Casswell Wood. *P. setiferum* was very abundant here, and also *A. scolopendrium,* much of it with very undulate fronds. Some quite good marginate forms with incised edges were collected.

On Sunday we started the day in a railway cutting just south of Chepstow, where the chief interest was the polypodies growing in great abundance on the rock walls. We noted *P. australe, P. interjectum* and a large number of what appeared to be hybrid forms. The other ferns here were *A. ceterach, A. scolopendrium, A. trichomanes, D. filix-mas* and *P. aculeatum*. We delayed here longer than we intended so that our plans for the rest of the morning had to be curtailed and left time only for a short visit to Sudbrooke (31/58) to see *A. marinum* on the rocks there - it was the only fern seen.

In the afternoon we visited Shirenewton Hall at Shirenewton (32/49) to see the garden which still retains traces of its past owner, E J Lowe. (See the article on E J Lowe which appeared in Bulletin Vol 1 No 6). By courtesy of the present owners, Mr and Mrs E A Hayward, we were allowed to wander at will and we found that there are still many fine fern varieties scattered throughout the garden and grounds. We were blessed with good weather for the visit and had a very enjoyable afternoon, noting several varieties of great interest, chiefly among the hartstongues.

WEEK MEETING

Criccieth, North Wales — 9/16 June. We were fortunate in both the choice of an hotel for our centre and in the week chosen for this meeting, the only week one held this year. Over the week, 17 members attended, Bert Bruty, Jimmy Dyce, Alf and Ray Hoare, Clive Jermy, Josephine Rankin and Vic and Ethel Williams for the whole time, and Peter Benoit, Nigel Hall, Nick and Eleanor Hards, Chris Page, Martin and Hazel Rickard and John and Ann Wilks-Jones for shorter periods. Our centre was the Caerwylan Hotel, situated on the front at Criccieth with a fine view over Tremadoc Bay and a most efficient organisation which allowed us to start our days at breakfast a half-hour ahead of the other guests, with no hold-ups whatever — not even for that second lot of toast, which in most hotels we frequent is the cause of a lot of frustration and waste of time. There was no waiting for our packed lunches, another common time-waster, which were brought to our table before breakfast was finished. Included in the "resident" party were Vic and Ethel Williams from New York and it was a great pleasure to meet again these two cheerful Americans who did much more than their share to make the week a happy one. The nominal leader was Jimmy Dyce whose duties consisted in seeing that we had efficient leadership each day — with the energetic Clive Jermy in the party for the whole week and the equally energetic Martin Rickard for the opening weekend, the job was a sinecure and all problems of where to go each day were easily solved. Thanks to their enthusiasm we all had a most enjoyable and interesting week and were able to see a goodly number of the ferns, common and not so common, which exist in the area.

Our first expedition, on the Sunday, was to Moel Hebog (Grid ref 23/54) the mountain overlooking Beddgelert on the west. We travelled up the Pennant valley on its west side as far as a farm from which it was an easy climb up Cwm Llefrith to the saddle on the north slopes of the mountain which Martin Rickard avers has a more numerous population of fern species than any other mountain he has visited either in this country or on the Continent. The new edition of the *Atlas of Ferns* of *the British Isles* lists 41 species of ferns and allies for the National Grid 10 km square in which the mountain lies; the most we have been able to record during our several visits over the years is 29, but this year only 25 of these were seen. Along the stream running down the Cwm, for part of its course on the lower slopes in quite a deep ravine, were the larger-growing ferns — dryopteris species and *Athyrium filix-femina.* Only in such sheltered conditions were they, in this exceptionally late year, showing fully developed fronds, but it was noticeable how variable *Dryopteris pseudomas* was in this respect. Some plants had fully expanded fronds, others were very much in the fiddle-head stage and were most distinctive. On these late developers it was also striking how much more profuse and rich in colour were the golden scales. Indeed, this was evident wherever we went during the week and we found many places with extensive colonies of this magnificent fern, forming great clumps of extreme vigour. Clive Jermy expressed the opinion that much more research is needed on *D. pseudomas* which may turn out to be a complex of more than one species.

On the more open ground, as we climbed, *Oreopteris limbosperma* was common along the stream, as was *Blechnum spicant,* and of course there was the ubiquitous *Pteridium aquilinum.* Higher up, the terrain becomes more rocky with small cliffs and huge boulders scattered over the slopes, and here we found *Asplenium adiantum-nigrum, A. ruta-muraria, A. trichomanes* and even *A. septentrionale.* Also seen were *Polypodium vulgare* and *Hymenophyllum wilsonii,* and in rock crevices a fair amount of *Polystichum aculeatum*; a single plant of *P. setiferum* was noted. At the higher levels and on the saddle there was

A. viride, some *D. oreades* and, of course, *Woodsia ilvensis,* one of the chief attractions of the mountain, particularly for Martin Rickard. On the grassy slopes *Diphasiastrum (Lycopodium) alpinum* was common, but only a few plants of *Lycopodium clavatum* could be found; on the rocks and slopes *Huperzia selago* was frequent and some *Selaginella selaginoides* was also seen.

Descending the mountain to the cars we moved higher up the valley to a deep ravine coming down to the road at Braichydinas (23/54). The magnificence of the developing fronds on the huge clumps of *D. pseudomas* remain the dominant memory of this spot. In the deeper recesses of the ravine down which a vigorous stream poured, and which only our younger, more energetic members explored, both *H. wilsonii* and *H. tunbrigense* were found, the former in great abundance in places. The other 6 species recorded were the more common ones of the area.

After a strenuous first day, shared in full by four of our party with ages ranging from 69 to 79, we relaxed somewhat and devoted the following morning to the coastal area between Criccieth and Portmadoc (23/53). Our first hunt was on sloping wet woodland at Bron-y-Foel where ferns were growing luxuriantly, and much more advanced than on the high ground, but more limited in the number of species present. We recorded 11, *A. filix-femina, B. spicant, D. austriaca, D. carthusiana, D. filix-mas, D. pseudomas, D. X tavelii, O. limbosperma, P. interjectum, P. vulgare* and *P. aquilinum.* The lady fern and the male ferns were common and we noted one plant of the hybrid *D. X tavelii.* A good colony of *D. carthusiana* was found in the wet ground at the lower end of the wood where also there was some polypodium on the trees. In some open marshy ground the lady ferns were very distinctive and we observed not only the varying main stem colouring from pale green to red but also the range of scale colouring from almost colourless to black. On nearby high ground capped with low cliffs and rocks we found *A. billotii.* At Black Rock on the coast we hoped to find more *A. billotii,* as well as *A. marinum,* but were disappointed.

We split up in the afternoon, the Rickards to return home, others to relax and sightsee, leaving a hard core of Clive, Josephine, Bert and myself to return to the Moel Hebog area. This time we approached the mountain from the south, parking the car at the reservoir called Llyn Cwmystradllyn (23/54). The younger members struck up towards the cliffs on the slopes above hoping to find more *W. ilvensis* while Bert and I explored round the Llyn hoping we might find isoetes growing in the water – a vain hope. Neither party had much luck – we found 8 species, all common ones except *Phegopteris connectilis* in two or three small colonies among rocks. Again *D. pseudomas* was noteworthy in some very extensive large-growing colonies on the rocky slopes. Later in the year this walk round the Llyn must become much more strenuous when the bracken is fully grown – it was easy to wade through the stretches of rising fronds, still in the crozier stage and brittle under foot. Clive's records from the higher ground included *D. oreades,* abundant *Cryptogramma crispa, Diphasiastrum alpinum, Selaginella selaginoides,* but not woodsia. The return journey was across country on rough tracks – they could not be called roads – past a small lake, Llyn Du, where a short stop was made to look for isoetes; we found only *Equisetum fluviatile.* We came out into "civilisation" again at Prenteg.

So far we had been fortunate with the weather but it deteriorated on Tuesday when we planned a visit to the north side of the Lleyn Peninsula overlooking Caernarfon Bay. The area selected was the high coastal ground north of Llithfaen (23/34) sloping steeply down to the shore, where there are old records for *D. aemula,* one of the ferns we hoped to see during the week (and didn't!). The party split, some doing the high ground on the east, Yr Eifl, and finding it pretty barren where ferns were concerned – they reported 5 species only. The larger party descended the steep hillside to the coast (about 1000 feet) by a zigzag rough road through a Forestry Commission plantation, finding the usual common ferns en route, among them abundant *O. limbosperma* which, surprisingly, is a new record for the square in the *Atlas*, and super-abundant *B. spicant.* At the bottom we entered into a dead world, a derelict quarrying area with a large deserted village which at one time must have been a very busy thriving community, Porth-y-Nant, but now is an area of ruined houses. A notice on one of the walls stated it had been bought for restoration to provide a national residential centre for teaching the Welsh language – in present-day conditions a rather forlorn hope, it seemed to us! On the old walls we noted several ferns, *A. adiantum-nigrum, A. scolopendrium, A. trichomanes, P. interjectum* and a large colony of *A. ruta-muraria.* Further along on the many screes *C. crispa* was very much at home.

By this time the weather had deteriorated into a fine wetting rain and as there was now no path and the going was very rough it was decided to retrace our steps. Three of us continued on towards the Gallt y Bwlth wooded area in an endeavour to find *D. aemula* which has been recorded from here, but time was getting on and the weather worsened so we swung inland making a path for ourselves up the steep slopes over rough ground and through stunted woodland until eventually we reached the top in a thick mist which happily cleared suddenly just as we levelled off at the top, enabling us to get our bearings. Fern hunting and recording were forgotten during that wet climb but I noted that we were ascending near a deep wooded ravine running down to the shore, which in better weather conditions could have provided some interesting hunting.

In the afternoon we moved on eastwards to Gyrn-goch to the deep wooded valley of the Afon Hen at Cwmgwared (23/44). There was an abundance of ferns, 11 species in all plus the horsetails *E. arvense* and *E. telmateia.* Most of them were the common woodland species, but among them were *D. X tavelii, P. connectilis* and *P. interjectum,* and on the rocks in the stream some *H. wilsonii.* Again *D. pseudomas* was present in full measure, distinctive with its rich golden scales.

Clive had been in communication with R H Roberts of Bangor, and this led us on Wednesday to visit Anglesey, in the limestone area of Penrhos Lligwy (23/48) on the east side of the island where we hunted the woods at Plas Lligwy in miserable wet weather. The woods are on overgrown limestone pavement which made walking conditions somewhat risky in places. We noted 14 species – the lady ferns were common along with *D. austriaca, D. pseudomas,* an abundance of *D. filix-mas,* one large plant of *D. X tavelii, A. scolopendrium, P. setiferum* and the occasional plant of *P. aculeatum;* one plant of the hybrid *P. X bicknellii* was found. Some of the *P. setiferum* was very large-growing and included good specimens of the variety 'Decompositum'. Another variety found, *A. scolopendrium* 'Crispomarginatum', was collected and crowns distributed among members present. Several plants of *D. austriaca* were seen with fronds more finely divided and quite crisp, and a few specimens were collected. On a wall at the farm where we parked the cars was a large colony of *A. ruta-muraria.*

The chief attraction in this wood was the polypodies which were profuse on rock faces, covering boulders and on the trees, and both *P. australe* and *P. interjectum* were recorded. Hybrid forms seemed to be common and one most impressive colony, obviously hybrid, was discovered, its very large fronds densely covering an extensive area of vertical cliff. In this connection I quote a note given to me by Clive – "Very large polypodies were seen festooning rock faces and tree boles in the ash/sycamore woodland on the pavement. Samples were taken by me for cultivation at Chelsea Physic Garden and Edinburgh Botanic

Garden to check if they are the hybrid *P. X font-queri (P. australe X P. interjectum)* or a diploid form that may be more closely related to the Canary Island plants *P. macaronesicum* A. Bobr. than to *P. australe.* Time and experimentation proposed by Chris Page will hopefully elucidate this exciting problem."

During the afternoon in better weather we retired southwards to Pentraeth and explored along the lanes at Tan-y-Graig (23/57). This was another area recommended by R H Roberts, and along the roadside walls many ferns were found – we recorded 9 species. *A. adiantum-nigrum* was present in a great abundance of very large-growing plants. We also noted *A. trichomanes* subsp. *quadrivalens.* Hybrids again appeared to be present among the polypodies and Clive provisionally named *P. X font-queri* and *P. X shivasiae.* On the wooded slopes behind the road walls grew very vigorous *D. filix-mas, D. pseudomas* and *P. setiferum* along with some *A. scolopendrium* and where we parked the cars was a large colony of *E. telmateia.* On the homewards journey Clive and Josephine stopped at Bangor to pick up Chris Page on his arrival at 5.30 by train from Edinburgh to spend the rest of the week with us. As the weather had cleared they devoted some time before returning to Criccieth exploring the rocks on the south side of Nant Peris (23/65) with the hope of finding the hybrid *A. adiantum-nigrum* X *A. septentrionale; A. septentrionale* only was found.

On Thursday, with the arrival of Chris Page and Nick and Eleanor Hards who also joined us the previous evening, a more emphatic botanical flavour was given to our activities, and the newcomers along with Clive and Josephine went north to the Ogwen valley and climbed into Cwm Grianog, an interesting and deep corrie on acid grits of the Glydders (23/66). Clive reports – "On the climb up to the Cwm just above the old Bethesda road the open scree contained some of the largest plants of *D. oreades* seen with over 30 crowns. Two forms of *D. pseudomas* were present and at this time of the season quite distinct: one the West Scotland form, still in tight crozier with golden scales and young tissue which we may equate with the Madeiran diploid plant *D. affinis* (Lowe) Fraser-Jenkins. The other, well open, a deeper green with dark scales on the rhachis and a more regularly cut frond, may turn out to be the triploid form, i.e. the diploid hybridising with *D. oreades. D. filix-mas* was present but rare and further hybrid populations are possible and have been recorded by R H Roberts who recommended our looking at this site. In the corrie itself, now dry but presumably once holding a lake, *D. expansa* was found and here R H Roberts has found *D. X ambroseae,* the hybrid with *D. dilatata. Cystopteris fragilis,* a highly dissected form and most likely hexaploid was also in the crevices with *A. trichomanes,* subsp. *trichomanes.* Cryptogramma was abundant and the three clubmosses *Diphasiastrum alpinum, Huperzia selago* and *Lycopodium clavatum* were seen. The party moved on to the Ceunant Llennyrch hoping to find the other members. A short sortie to the interesting gorge found a very interesting *Dryopteris* (? X *deweveri*) – taken to cultivate at Chelsea Physic Garden – in the wet sphagnum flushes festooning the rocky gorge where *B. spicant* assumed tropical proportions. Time was not sufficient to explore the valley."

The "other members" had, I am almost ashamed to admit after reporting on Clive's activities, a lazy day. Our only excuse – we were not quite so young in years as his party! We spent the morning, first on the high ground above the Ceunant Llennyrch (23/63), finding 10 of the more common species along the roadside, then, like Clive, we made a short sortie into the gorge from the north end at Ivy Bridge. Previous visits here had discovered *A. billotii, D. aemula,* both hymenophyllums and *Osmunda regalis,* to mention a few of the 18 species then recorded, but this time our sortie was very short (it was nearing lunch-time!)

and the only "goodies" we saw were *O. regalis* (one plant) and a fine colony of *P. connectilis.* We, also, noted the super-abundance and large size of the *B. spicant,* as well as an abundance of *O. limbosperma.*

During the week many references had been made to the Italian Village at Portmeirion (23/53) and as this was on our homeward route and not too far away the decision was taken to forsake ferns in favour of a visit there. In the event, we were glad we did for it enabled us to show our American friends two fern species we had so far been unable to show them, *A. billotii* and *A. marinum.* They grew on the rocks just beyond the Village gardens proper; also on the walls were fine specimens of *A. adiantum-nigrum.*

Our hunting on Friday took us down the coast to Barmouth (23/61) to meet Peter Benoit who is the plant recorder for his area and has a vast knowledge of its ferns, particularly hybrid species. We spent the day with him, visiting several places of fern interest, and started off in a rather wet and cold morning at a site for *E. X litorale (E. fluviatile* X *E. arvense).* The horsetail was growing strongly over a good stretch of ground and was accompanied by one of its parents, *E. arvense.* The other, *E. fluviatile,* which grows in wet ground and ponds had long since died out when the area was drained. During our visit to Barmouth in 1975 this hybrid was also found along the roadside near Harlech (23/53), and as he passed in the car Chris Page spotted the horsetail and confirmed it to be still growing abundantly over a half-mile stretch of the roadside. Moving north to Llanenddwyn we visited the dunes where the chief interest was *Ophioglossum vulgatum.* This colony was thought to be *O. azoricum (O. vulgatum* subsp. *ambiguum),* and indeed during our last visit in 1975 was so recorded, but in the meantime Peter has had further thoughts about it and with the support of two "high-powered" botanists in Clive and Chris during our present visit, the definite conclusion reached was that it was *O. vulgatum.* In the same area *E. variegatum* is quite widespread and we also noted *E. arvense* and *E. palustre.*

Returning south again through Barmouth we travelled eastwards along the estuary to Llanelltyd, and on through narrow lanes north of Dolgellau to Ochr-y-foel-isaf (23/71). The usual roadside ferns were seen and they included *D. oreades* and *P. connectilis,* but our interest here was in *A. trichomanes.* There are two recognised subspecies of this fern in Britain and there are further complications with hybrids between them. This area provided good examples and our three botanists had a field day! However, it was all too complicated for me, a mere amateur fern botanist, to explain and I again call on Clive to take over! —
"On a dolerite wall was *Asplenium trichomanes* subsp. *trichomanes* (diploid), large tufted plants with several crowns and with persistent rachides, and leaves erect in that they spread up from the substrate. In the tetraploid, subsp. *quadrivalens,* the leaves are usually adpressed to the wall or substrate unless in very deep shade. The diploid showed the oblique insertion of the pinnae especially at the tips of the fronds. The pinnae were ridged or striate turning up at the tips and curling under along the edges, whereas in *quadrivalens* they were much flatter and not striate. Peter Benoit said the diploid died down earlier than *quadrivalens.* Further along the wall we found with the two parents the triploid hybrid, a vigorous plant with intermediate characters and abortive spores."

Southwards from here a final stop was made at Brithdir (23/71) where Peter showed us more plants in the *A. trichomanes* complex. We recorded 8 species along the road, among them a fine strong-growing colony of *A. ceterach.* An interesting point was the many plants with last year's fronds still growing and bearing two generations of spores, those of last year ripe but still not dehisced and this year's ones green and still developing.

This stop brought the week's meeting to a close and we all departed on our separate ways home. There had been something for all of us – the botanists were satisfied, and the rest of us saw much of interest although only one fern variety was found. Our American members, Ethel and Vic Williams took home with them some new fern memories and I doubt if we could have given them a much better fern holiday anywhere else in Britain. In all, we logged 48 species of ferns and allies – 33 ferns and 4 hybrids, and 10 allies and one hybrid. New *Fern Atlas* records were added to five 10 km squares, mostly ones and twos, but in square 23/64 the number added was 5. (See New Fern Records, below).

PTERIDOPHYTE RECORDS – 1979

Compiled by A R Busby

Since the publication of the *Atlas of Ferns* last year, a number of errors has come to light. Doubtless there will be others and I shall endeavour to publish them along with new records.

I would like to express my thanks to all BPS and BSBI members, to the many Vice-county Recorders and especially to Clive Jermy and his staff in the Fern Section of the British Museum (Natural History) and to Dr Frank Perring and the staff at the Biological Records Centre, Monks Wood, all of whom have taken much trouble to make my task as Recorder worthwhile.

The following new records have been received up to 1st October 1979 and have been forwarded to the Biological Records Centre.

UNITED KINGDOM (Pre 1950)

18.1 **Thelypteris thelypteroides subsp. glabra** – 53/19 NOT 53/09, E J Gibbons.
21.4 **Asplenium cuneifolium** – 10/61, C H Ostenfeld. 10/71, N Y Sandwith.

(Post 1950)

1.2 **Lycopodium clavatum** – 28/37, 37/26, U K Duncan. 28/49, B & J Burrow. 32/51, Mrs U Evans. 35/99, G A Swan. 36/50, D E Ellis. 51/42, P C Hall.
2.1 **Lycopodiella inundata** – 20/06, L J Margetts. 41/72, 41/81, P C Hall.
3.1 **Huperzia selago** – 51/81, P C Hall.
4.1 **Diphasiastrum alpinum** – 18/51, B S Brookes. 22/78, A O Chater. 28/49, B & J Burrow.
5.1 **Selaginella selaginoides** – 22/75, J P Savidge. 23/91, R G Woods. 23/92, P M Benoit. 43/89, Mrs I Weston.
5.2 **Selaginella kraussiana** – 16/76, A C Kenneth.
6.1 **Isoetes lacustris** – 18/25, 25/16, 25/49, 25/96, Mrs C Murray. 36/09, G Ballentyre.
6.2 **Isoetes echinospora** – 18/42, Mrs C Murray. 25/67, R Stokoe. 25/76, 25/87, O M Stewart.
7.1 **Equisetum hyemale** – 11/99, Unknown. 18/45, 18/55, 18/71, Mrs C Murray. 26/80, M Martin.
7.1x2 **Equisetum x trachydon** – 18/25, Mrs C Murray.
7.2 **Equisetum variegatum** – 10/53, 10/75, L Margetts. 18/41, J & D Bowman.
7.3 **Equisetum fluviatile** – 25/49, O Stewart. 29/00, C Scouller. 38/62, 38/74, D Welch. 51/10, P C Hall. 51/37, Unknown. 51/39, Mrs L Small. 52/58, R Lynch.
7.4 **Equisetum arvense** – 18/52, M Webster. 18/71, Mrs C Murray. 25/54, O Stewart. 28/27, U Duncan. 41/81, 51/42, P C Hall.
7.4x3 **Equisetum x litorale** – 18/25, C Murray. 18/72, P M Benoit. 21/70, M Scannell. 22/92, T Davis. 23/23, R Roberts. 25/85, O Stewart. 27/96, M Webster. 51/32, R C Palmer.
7.5 **Equisetum pratense** – 18/46, C Murray. 26/57, A McG Stirling.

7.6 **Equisetum sylvaticum** – 22/03, P Trehear. 23/54, J W Dyce. 25/49, O Stewart. 28/75, M Webster. 32/27, P Richards. 34/79, R M Burton. 36/76, A Willmot. 51/16, Mrs E Ferguson. 51/43, Croydon NHS. 52/20, H J Killick.

7.7 **Equisetum palustre** – 18/71, C Murray. 21/59, R M Burton. 22/14, S B Evans. 25/54, 25/56, 25/57, 25/86, O Stewart. 35/07, 35/28, M Martin. 35/16, P Henderson. 40/89, 41/80, 41/81, 41/82, 41/90, 41/91, 41/93, 50/59, 51/02, 51/03, 51/10, 51/11, 51/52, P C Hall. 51/35, 51/38, London NHS. 51/36, D P Young. 51/48, Wren C G. 52/40, M Kennedy.

7.8 **Equisetum telmateia** – 11/99, S Coles. 20/47, J Rees. 23/44, 26/99, J W Dyce. 23/97, 51/26, R M Burton. 34/27, D Hartley. 41/90, 41/92, 41/93, 51/60, P C Hall. 42/07, 42/08, A R Busby. 51/17, 51/38, Mrs L Small. 52/10, Unknown. 52/57, R Payne.

8.1 **Botrychium lunaria** – 28/09, 28/19, C Scouller. 28/36, M Webster. 35/34, Unknown. 36/33, D E Ellis. 42/20, G A Swan.

9.1 **Ophioglossum vulgatum** – 40/89, 41/80, 41/82, 41/91, 51/01, 51/22, 51/91, P C Hall. 43/23, 43/33, A Willmot. 51/07, S Wenham. 51/29, H J Killick. 51/38, B Warzell. 51/47, J Pitt.

10.1 **Osmunda regalis** – 11/99, C & E Perry. 12/84, S B Evans. 12/72, 22/12, 22/14, T. Davis. 18/33, 18/52, I Borag. 21/19, A Hill. 22/02, J E Amett. 22/10, B Ford. 22/86, R Woods. 25/90, 35/15, D Ratcliffe. 32/15, A Powell. 43/79, E Gibbons. 44/11, R Stevenson. 44/31, D Grant. 51/05, B Radcliffe. 51/11, P C Hall. 51/19, R Woods. 52/14, E Thompson.

11.1 **Cryptogramma crispa** – 23/23, T Maderios. 25/49, O Stewart. 36/60, G A Swan.

14.2 **Hymenophyllum wilsonii** – 28/09, C Scouller.

16.1-3 **Polypodium vulgare agg** – 51/20, 51/30, 51/31, 51/42, P C Hall.

16.1 **Polypodium vulgare** – 22/70, K Davies. 23/12, 23/23, A Conelly. 28/09, 28/19, C Scouller. 32/97, A R Busby. 34/86, 44/06, J Roberts. 36/60, D E Ellis. 50/59, 51/33, 51/52, P C Hall. 51/27, M Bechar. 51/47, 51/57, 51/82, R M Burton.

16.2 **Polypodium interjectum** – 22/04, T Davis. 23/34, 23/44, 26/99, J W Dyce. 51/22, 51/41, 51/51, 51/52, 51/60, 51/61, 51/71, 51/91, P C Hall. 51/67, J Palmer.

16.3 **Polypodium australe** – 20/15, 20/45, R Roberts. 34/77, F Roberts. 43/15, W Hughes. 43/25, A Willmot. 51/91, Miss B Nash.

16.3x1 **Polypodium x font-queri** – 51/91, Miss B Nash.

17.1 **Pteridium aquilinum** – 12/83, 12/84, T Davis. 41/81, 41/91, 50/49, 50/69, 51/33, 51/42, P C Hall.

18.1 **Thelypteris thelypteroides subsp. glabra** – 12/93, S B Evans.

19.1 **Phegopteris connectilis** – 23/44, 26/99, J W Dyce. 34/71, N A Hall. 35/48, J Martin. 36/60, G A Swan.

20.1 **Oreopteris limbosperma** – 23/34, 23/44, J W Dyce. 25/45, 25/85, O Stewart. 28/75, M McWebster. 35/88, 36/93, G A Swan. 36/85, 36/86, A. Willmot. 38/42, D Welch. 51/13, 51/41, 51/42, 51/61, 51/70, P C Hall. 51/16, H Sandford.

21.1 **Asplenium scolopendrium** – 20/74, 21/59, 21/64, 30/89, 30/98, 31/71, 31/80, 41/01, 41/81, 41/91, 51/33, R M Burton. 28/76, M Crawley. 32/84, A R Busby. 36/63, 36/74, 36/76, 36/86, A Willmot. 43/00, A R Busby. 50/49, 51/12, 51/42, P C Hall. 51/36, L Small. 51/48, D Woods.

21.2 **Asplenium adiantum-nigrum** – 21/64, 22/59, 45/10, R M Burton. 26/70, N Stewart. 28/09, C Scouller. 35/38, J Martin. 35/48, M Martin. 36/87, A Willmot. 38/62, D Welch. 40/89, 41/71, 41/81, 41/90, 41/91, 50/59, 50/69, 51/30, 51/40, 51/60, P C Hall. 42/09, A R Busby. 51/07, D H Kent. 51/27, J Gilbert. 51/36, R Clarke. 51/37, J E Lousley. 51/59, H Sandford. 52/46, G Easy.

21.4 **Asplenium cuneifolium** – 10/61, R M Burton.

21.6 **Asplenium marinum** – 12/71, T Davis. 20/83, R M Burton. 25/54, O Stewart. 28/26, 28/86, R W Corner.

21.7 **Asplenium trichomanes agg** – 12/90, 21/59, 21/64, 30/79, 30/88, 30/97, 31/71, 32/22, 51/72, R M Burton. 28/69, J Kirby. 32/84, A R Busby. 35/29, O Stewart. 35/96, 45/06, G A Swan. 40/89, 41/70, 41/80, 41/81, 41/90, 51/61, 51/63, 51/70, P C Hall. 43/34, 51/47, A Willmot. 51/06, K Lannon. 51/58, M Kennedy.

21.7a **Asplenium trichomanes subsp. trichomanes** – 35/76, G & M Swan.

21.7b **Asplenium trichomanes subsp. quadrivalens** – 18/51, M Webster. 22/01, T Davis. 25/45, 25/47, 25/56, 25/64, 25/65, 25/66, 25/67, 25/74, 25/75, 25/76, O Stewart. 37/65, U Duncan.

21.8 **Asplenium viride** – 18/54, C Murray. 25/58, O Stewart.

21.9 **Asplenium ruta-muraria** – 21/59, 30/79, 30/88, 30/89, 30/97, 31/71, 40/08, 44/19, R M Burton. 32/84, 42/07, A R Busby. 41/90, 41/91, 51/11, 51/20, 51/21, 51/30, P C Hall. 51/36, L Small. 51/58, 51/68, M Kennedy. 52/34, R Payne.

21.10 **Asplenium septentrionale** – 18/54, C Murray.

21.11 **Asplenium ceterach** – 10/72, J Rees. 16/68, C Scouller. 20/67, 30/49, 30/97, 31/71, 41/80, 45/11, R M Burton. 20/73, Wild Flower Soc. 22/10, 22/14, T Davis. 23/32, N Gordon. 25/36, 25/68, O Stewart. 32/17, A Powell. 35/48, D E Ellis. 41/82, 41/90, 50/69, 51/33, 51/70, P C Hall. 51/16, R A Boniface. 51/17, H Sandford.

22.1 **Athyrium filix-femina** – 21/59, 30/78, 51/42, R M Burton. 26/90, O Stewart. 33/18, G Wynne. 38/52, 38/74, D Welch. 36/73, A Willmot. 41/80, 41/90, 41/91, 51/00, 51/11, 51/40, P C Hall. 51/38, D N Turner. 52/94, P Taylor.

23.1 **Gymnocarpium dryopteris** – 18/46, C Murray. 25/65, A McG Stirling. 25/87, 35/29, O Stewart. 26/99, J W Dyce. 28/17, B Ing. 36/87, A Willmot. 38/64, D Welch. 51/19, D J Hinson.

23.2 **Gymnocarpium robertianum** – 41/91, P C Hall. 42/17, A R Busby.

24.1 **Cystopteris fragilis** – 18/43, C Murray. 22/31, I Vaughen. 26/99, J W Dyce. 35/18, M Martin. 35/38, N Stewart. 36/65, 36/86, A Willmot. 51/63, P C Hall.

26.1 **Polystichum lonchitis** – 28/06, Unknown. 44/81, J Gibbons.

26.2 **Polystichum aculeatum** – 26/99, J W Dyce. 32/05, A Powell. 35/28, J Martin. 35/38, O Stewart. 35/48, D E Ellis. 38/64, D Welch. 40/79, 40/89, 41/81, 41/90, 41/91, 51/11, 51/12, 51/23, 51/43, 51/71, P C Hall. 51/68, London NHS.

26.2x3 **Polystichum x bicknellii** – 23/63, P M Benoit.

26.3 **Polystichum setiferum** – 10/42, R W Corner. 10/62, 20/55, 21/44, 21/64, R Burton. 22/13, T Davis. 22/40, I Vaughen. 25/06, 25/75, 25/76, O Stewart. 36/53, J Blance. 36/63, 36/76, 36/85, A Willmot. 41/80, 41/90, 41/91, 51/00, 51/10, 51/12, P C Hall. 51/26, B Radcliffe. 51/49, K Adams.

27.1 **Dryopteris oreades** – 18/54, C Murray. 25/56, 26/90, O Stewart. 25/26, A Silverside. 36/44, R Corner.

27.2 **Dryopteris filix-mas** – 18/54, C Murray. 25/66, O Stewart. 26/99, J W Dyce. 50/49, 51/60, 51/70, 51/80, P C Hall.

27.2x3 **Dryopteris x tavelii** – 22/33, BSBI (Wales). 23/44, 23/48, 23/53, 26/99, J W Dyce. 25/95, O Stewart. 43/34, A Willmot. 54/26, N Hards.

27.3 **Dryopteris pseudomas** – 22/34, 53/02, A O Chater. 22/40, 22/41, I Vaughen. 22/60, K Davies. 25/58, O Stewart. 26/81, M Martin. 26/99, J W Dyce. 32/11, R M Burton. 36/74, 36/84, 36/95, A Willmot. 37/54, U Duncan. 41/90, 41/91, 41/92, 51/00, 51/01, 51/11, 51/21, P C Hall. 43/08, 43/33, 43/47, A Willmot. 51/26, B Radcliffe. 51/28, L Small. 51/47, P Halligey. 52/57, A Leslie. 53/02, J Gibbons.

27.5 **Dryopteris aemula** – 18/54, C Murray. 22/00, J Evans. 22/77, R Roberts. 28/09, C Scouller. 35/11, D Ratcliffe. 51/33, 51/53, P C Hall.

27.8 **Dryopteris carthusiana** – 18/54, C Murray. 20/58, 51/15, 51/47, 53/72, R Burton. 21/59, 22/31, S Evans. 22/42, 22/51, 22/61, 22/73, I Vaughen. 23/53, J W Dyce. 25/55, 25/57, 25/58, 26/50, O Stewart. 25/89, A Stirling. 32/15, A Powell. 35/28, 36/00, M Martin. 35/89, 36/92, G Swan. 36/74, 36/85, 43/47, A Willmot. 37/16, U Duncan. 41/81, 41/92, 51/12, 51/33, 51/42, P C Hall. 51/06, E J Clement. 51/15, A Thorley. 51/35, R Clarke. 51/47, J Pitt & S Pittman. 55/55, H Birks.

27.9 **Dryopteris austriaca** – 26/99, J W Dyce. 28/09, C Scouller. 41/80, 41/91, 50/49, 51/30, 51/33, 51/40, 51/42, P C Hall. 51/05, E J Clement. 52/49, G Easy. 53/70, R M Burton.

27.9x8 **Dryopteris x deweveri** – 25/74, O Stewart. 37/16, CSSF. 51/33, P C Hall.

27.10 **Dryopteris expansa** – 18/54, C Murray. 25/97, O Stewart.

28.1 **Blechnum spicant** – 21/59, 21/64, 41/91, 51/33, 51/42, R M Burton. 21/90, R B Ivimey-Cook. 33/07, 33/18, G Wynne. 41/81, 51/70, P C Hall. 51/47, R Clarke.

29.1 **Pilularia globulifera** – 32/05, R Birch. 32/17, R Woods. 35/10, R Stokoe. 51/25, B Radcliffe. 51/27, C Avery. 51/42, C Stace.

30.1 **Azolla filiculoides** – 20/08, 20/98, Mrs S Wilsden. 20/45, F H Perring. 22/69, K M Stevens. 33/41, 33/59, N Gordon. 40/89, 51/00, 51/02, 51/10, 51/50, 51/81, P C Hall. 43/97, I Weston & J Gibbons. 51/20, London NHS. 51/25, 51/36, B Radcliffe. 51/27, M Becher. 51/48, 51/69, Unknown. 51/81, L Breda Burt. 52/35, 52/47, A Leslie.

The following errors, printed in the *Atlas*, have been brought to my attention:–

Asplenium trichomanes subsp. trichomanes should be 28/42 NOT 28/45, U Duncan.
Asplenium ruta-muraria at 42/08 is a Pre-1950 record, A R Busby.
Asplenium trichomanes subsp. trichomanes at 28/66, and
Ophioglossum vulgatum at 28/76, should be deleted, U Duncan.
Cystopteris fragilis at 24/39, should be deleted, D E Allen.
Polypodium x font-queri should be 51/91, NOT 51/81, and
Polypodium x mantoniae at 51/72, should be deleted.
Thelypteris thelypteroides subsp. glabra at 51/40, should be deleted, P C Hall.

IRELAND (Post 1950)

5.2 **Selaginella kraussiana** – 00/97, T O'Mahoney.
7.1x2 **Equisetum x trachydon** – 23/86, J Harron.
7.5 **Equisetum pratense** – 23/98, J Harron.
7.6 **Equisetum sylvaticum** – 33/09, J Harron.
16.1-3 **Polypodium vulgare agg** – 33/08, J Harron.
16.2 **Polypodium interjectum** – 12/41, J Harron.
16.3 **Polypodium australe** – 13/96, 23/13, 23/85, 33/38, 33/39, 33/49, 34/14, 34/22, 34/31, P Hackney. 33/27, S Stewart. 33/37, P & O Morton.
21.1 **Asplenium scolopendrium** – 22/63, S Holland.
21.2 **Asplenium adiantum-nigrum** – 22/63, S Holland. 33/53, J Harron.
21.7 **Asplenium trichomanes agg** – 22/63, S Holland.
21.11 **Asplenium ceterach** – 22/63, S Holland.
26.3 **Polystichum setiferum** – 33/39, J Harron.

ERRORS

Polypodium australe at 33/22, 33/32, are errors, P Hackney.

The publication *Instructions for Recorders,* compiled by John Heath and Diane Scott, is available from the Biological Records Centre,Institute of Terrestial Ecology, Abbots Ripton, Huntingdon, PE17 2LS.

THE SERPENTINE BLACK SPLEENWORT IN NORWAY

R H Roberts

In June, 1979, I received a request from Dr Dag Øvstedal, of the University of Bergen, for an off-print of the paper in the *Fern Gazette* Vol 11 (1974) reporting the occurrence of *Asplenium cuneifolium* Viv. in Scotland.

After receiving (and reading!) the off-print Dr Øvstedal wrote again to tell me that some specimens in the Botany Museum of the University of Bergen appeared to him to be very similar to the figures given in that paper by Mr Allan McG Stirling and myself. Subsequently a sheet was sent for me to examine and I was delighted to find that all the specimens were quite unambiguous *A. cuneifolium.*

All of them had the broadly-deltoid lamina and markedly flabellate (fan shaped) ultimate segments which, when well displayed, readily distinguish *A. cuneifolium.* Moreover, they had been gathered, in June 1918, from a serpentine rock outcrop in Hordaland Fylke, Norway. No other details of the locality or even the collector's name could be made out. Nevertheless this is the first certain record of *A. cuneifolium* from Scandinavia.

It was unfortunately impossible to get a sufficiently good sample of spores to obtain an estimate of spore length, but on the basis of frond morphology it may be expected that these plants will prove to be tetraploid like those from Scotland and Ireland. Ultimate proof of this will have to wait until the plants are re-found in Norway so that living material can be brought into cultivation for cytological examination.

A PERSONAL ACCOUNT

of the trials, tribulations and successes of an unscientific fern-grower

Di Turner

There is a green hill somewhere between George and Knysna. It is fringed by 70 hectares of indigenous forest. Two wine-coloured rivers map out its boundaries.

George is situated on the south coast of South Africa on a narrow coastal plain bounded by the sea in the south and the Outeniqua mountains in the north. It is equidistant between Cape Town and Port Elizabeth.

Eight years ago, slick from the city, we came with five children and christened it "Strawberry Hill". We laid on waterpoints, constructed fences and covered it with an odd assortment of animals. Then we ran out of money.

First we tried growing strawberries. It paid, but we nearly died of exhaustion. Taking tourists horse-riding in the forests was fun but it didn't cheer the Bank Manager. Our pig-breeding phase was a nasty olfactory experience and a financial disaster.

"We can't go on. We'll have to sell Strawberry Hill". Faced with losing my most precious possession, I sat down and did some hard thinking. For four years we fought the environment and achieved nothing. Would things change if we cooperated with it?

Under the forest canopy that lies at the foot of the Outeniquas, ferns have grown for thousands of years: if I could learn to cultivate them, I could start the only indigenous fern nursery in the country.

Most books presupposed fancy greenhouses, mist irrigation and some botanical knowledge. Our greenhouse was, and still is, a converted stable constructed from corrugated iron and sacks. Our water contains so much vegetation that the misters blocked every time they were used. And the only comprehensive standard work on South African ferns was out of print, regarded as Africana, and outside my price range.

I persisted undeterred, spurred on by my incurable optimism which had shortly before landed me in the muck-heap. Even before we knew the names we started cultivating the different species. We used three methods: rhizome division; plantlets formed by some of the Aspleniaceae; and spore.

We grew the spore in three ways:

* Polystyrene trays were filled with compost, thinly sprinkled with spore and covered with old sheets of glass.
* Spore-bearing leaves were laid spore-side down on large wooden trays of compost.
* A number of adult ferns were planted in wooden trays and left to drop their spore in their own good time.

It was about this stage that I was first introduced to "blue-green algae". It thrived on our heavy forest compost and all my beautiful prothalli started to die. Desperately looking for a solution, we changed our spore growing-medium to pure sand and the results were gratifying to say the least. The interior of the greenhouse became an impenetrable jungle of ferns. Another solution to this problem came from a remark by Prof E A Schelpe: "Ferns are peculiar plants. They tend to prefer the worst natural conditions to the best man-made".

The next patch of rainy weather saw us lugging the trays down to the river on a sledge drawn by a horse. Surprisingly, most of the ferns survived the very bumpy journey. The plants were removed from the trays and planted out in areas where they already grew profusely. Despite losses, huge numbers survived and did well. Our forest was slowly transformed into one of the largest natural greenhouses in Southern Africa.

We have our failures: .....

Our pastures are fighting a losing battle against *Pteridium aquilinum,* the common bracken, but the wretched things just curl up and die when we attempt to transplant them.

Only three specimens of *Marattia fraxinea* have been found on Strawberry Hill and we have not yet managed to grow it successfully.

Gleichenia polypodiodes or kystervaring is a forester's nightmare, it grows so profusely that it kills large pine trees. Initially, I was so frightened of it taking over that I refused to introduce it into the greenhouse in any form. Finally I did so with some misgiving but I needn't have worried, it has stubbornly thwarted all our attempts at cultivation.

And our successes .....

Alsophila capensis, the Cape tree fern and the most beautiful fern of all grew scarcely on Strawberry Hill. About 200 young plants of this species have now been transplanted from the greenhouse to the forest.

In the beginning we had very few specimens of *Asplenium flexuosum.* Thanks to its delightful habit of producing plantlets at the tips of the fronds, about 500 plants of this species have been returned to the forest.

And the hilarious moments .....

Three types of "ferns" which were sent to Prof Schelpe for identification turned out to be Asparagus.

Struggling to identify a roadside fern from a copy of Sim in the Saasveld Herbarium, I decided it was a *Woodsia burgessiana.* It was sent for confirmation to Cape Town. The reply: "This is *Pellaea viridis. Woodsia burgessiana* is a rare fern that grows at high altitudes."

Discussing *Pteris cretica* on the phone, "Why isn't it a Blechnum? It has the same spore-bearing leaves." The reply: "That's Nature's sense of humour."

What started off as a mild interest in ferns has become an all-absorbing passion. With 32 identified species, I am chasing that elusive creature – the unknown fern. When filling in forms I no longer have to write that hated word "housewife". At least, in my own opinion, I have become a "nurseryman" with an exciting and challenging job.

Because of our "green gold", Strawberry Hill is no longer threatened.

(Reprinted from the Eastern Cape Naturalist)

A PROPOSED LIST OF HARDY FOREIGN FERNS

Richard Rush

The list of hardy foreign ferns included in *Hardy Ferns* is, as Mr Kaye observes, "by no means complete." It occurred to me that it would be both interesting and useful to attempt to compile a more extensive list. If laid out in simple alphabetical form it could be consulted quickly and easily, prior to embarking on a search for detailed information, and simplified distribution data would indicate appropriate literature.

A non-definitive interim list, which drew on both the literature and on the collective expertise of BPS members, might, at least, encourage more of us to be adventurous in trying less familiar species in the garden. This is clearly an area of fern growing in which there is considerable scope for the amateur to make discoveries. To record such discoveries as you may already have made, and to include your nominations for potentially hardy species, would itself be of value. The proposed list will obviously not be comprehensive, but I already find my preliminary version of practical use.

The most effective way of consulting members is for those who are prepared to help to inspect my preliminary list and to inform me of omissions, identify mistakes which I have innocently repeated from unreliable sources, update names, and so on. The preliminary list is mainly, though not wholly, derived from my modest collection of fern books (every time I ask in second-hand bookshops for fern books they tell me that only the previous week someone beat me to it: I have my suspicions as to his identity!) It might be that one or two members would enjoy poring through suitable works for additional information. I can certainly recommend this kind of undertaking as providing an excuse for spending more than you ought on Fern books!

I envisage the list as primarily a checklist or key. If detailed information is easy to locate in widely available general works (e.g. *Hardy Ferns*), entries can be brief. Succinctly worded descriptions or comments of a helpful nature may be added in the case of unfamiliar species, though I have no ambition to rival or supplant authoritative fern literature.

Because there are so many variables implicit in the list's theme, I anticipate including a considerable number of "cold greenhouse" ferns, and some whose heating requirements are minimal, but the overall length of the final list will dictate its scope. At least it will include candidates for, as well as graduates of, the hardiness test. There must be many interesting ferns, notably Chinese and Japanese species, which are likely to prove hardy but about which no final verdict can be made since they have scarcely been tried in this country. I'd particularly like to hear from members who have experimented with the unfamiliar Japanese species which are available through the spore exchange.

If you're at all interested in this enterprise please write to me at 81 Churchbury Road, Enfield, Middlesex (within roughly, three weeks after the arrival of this *Bulletin*). I'll pass round a copy of the preliminary list, in Reading Circle fashion. You'll only have to post it on to the next interested member, meanwhile sending any additions or amendations directly to me. I'll enclose a fuller explanation of how you might help.

Whilst it won't masquerade as an authoritative guide to the subject, with your help I hope that avoidable errors will be eradicated, and that we can co-operatively make it of real use to the enterprising fern grower. I'd be happy to hand the project over – as a whole, or in part – to anyone who is better qualified than I am to handle it. I hope that a senior member will volunteer to act as pteridological censor – or schoolmaster – and will vet the final version. The question of how it can be made available is best left until such time as the likely usefulness of the list can be gauged.

NEW FERN VARIETY FINDS

J W DYCE

I have been taken to task by our Editor for not making a regular feature in the *Bulletin* in recent years of records of new fern variety finds in the wild. Some of us are very interested in these but, unfortunately, in spite of all appeals from me, finders of new varieties, with a few exceptions, have been far from forthcoming with information, and it has been with a slight feeling of exasperation that I have sometimes been told very casually by someone about an excellent find he made many years before. I again ask members to let me know when they find a good variety, preferably sending me a frond so that I can assess its value. I would remind them, too, that a really good wild find should be propagated and, as far as possible, distributed among other fern growers. We have the very appropriate example of *Polystichum setiferum* 'Pulcherrimum Bevis' (see article in this issue) – if Bevis had not taken his find to Dr Wills and if Dr Wills had not distributed crowns from the clump, we would never have known of this fern and its potentialities, and in all probability it would have been dead within a few years of its finding. There are many more potential "Bevises" among our members and one could be YOU!

During the past two years since I last wrote under this heading several finds of note have been made by members. A few are outstanding, some quite excitingly so, particularly the find this year by Nigel Hall on Moel Hebog, a mountain in Snowdonia. Earlier in the year during the Criccieth week meeting some of us must have been within yards of this fern, and that is how it goes! Nigel is to be congratulated; the fern is a first-rate treasure, a miniature *Blechnum spicant*, with two-inch fronds beautifully crisped and imbricate. It is an adult plant with a few crowns, one of them bearing a tiny fertile frond. This was passed on to me in the hope that some of the spores were still clinging to it and I have made a sowing of scrapings from it. Our Editor, Martin Rickard, has done the same, so between us we hope to get some results. Martin is no mean finder of "goodies" himself, and as he probably knows Moel Hebog better than most of us, mentally he must be kicking himself for not being the finder of *B. spicant* 'Crispo-minutissimum'! Lowe records at the beginning of the century that a similar variety was found by Druery and named 'Crispissimum'.

However, Martin has a few good finds to his credit. His first was made during the Chard weekend meeting in 1972 – a lady fern with long narrow and crested pinnules and long digitate crests to the pinnae. Reporting the find in the 1972 Newsletter I named it 'Percristato-digitatum', but after growing the plant in my garden during the seven years since it was found (Martin was not interested in variation at the time and allowed me to collect it!) it has so developed into a large-growing much superior variety that I have reconsidered the name and now label it 'Longipinnulum Percristatum Rickard'.

Last year he was fortunate enough to find a crested *Oreopteris limbosperma* at Fernworthy on Dartmoor. This species has had a very peculiar variation history. Lowe records 77 varieties and it was a most popular collector's fern during the "Victorian Fern Craze" years. It played a big part in inspiring our founders in the Lake District to bring our Society into existence. Since that time all varieties of the species have completely disappeared, and not one, to our knowledge, has survived, nor have any new wild finds been made, until now, during the 40 odd years I have been interested in the subject – can it be that after a long sojourn in the wilderness as a producer of varieties *O. limbosperma* is now coming back into "circulation" and the Dartmoor find is a precursor of things to come? It is more of a *cristulata* rather than a *cristata*, that is, the crests are tiny ones at the ends of the pinnae – a kind of variation which in itself is not very exciting, but in *O. limbosperma* very much so, and of much more than casual interest.

One other find of more than normal interest has to be credited to our Editor. During our Dartmoor meeting last year he found a good *Athyrium filix-femina* 'Congestum Crispum', not quite as good certainly as the best of this variation we have in cultivation, but it is the only time I have ever come across it in the wild, with the same very brittle, fleshy, congested and crispy fronds. During that same meeting several other varieties of more than minor interest were found, including a very good incised lady fern, a magnificent *Dryopteris X tavelli* 'Tripinnatum', *P. setiferum* 'Cristatum' and 'Rotundipinnulum' and *Polypodium australe* 'Serratum' verging on 'Semilacerum' when well grown.

Last year during the weekend meeting in the Cotswolds, a new member, Nick Hards, who only joined the Society that weekend, had a good stroke of beginner's luck in finding an excellent specimen of *P. setiferum* 'Divisilobum', a variety which very seldom comes our way in the wild – the finding of a real first-rate divisilobe of the 'Divisilobum Wollaston' calibre (See *Bulletin* Vol. 1 No. 5, p. 200) is long overdue. Other finds made over the past two years include several quite good narrow fronded marginate "scollies", some with frilled and lacerated margins. One was found in Anglesey this year during the North Wales meeting and a few not quite so good during the weekend meeting at Chepstow.

I finish on a sad note. Some years ago in 1973 I reported seeing during our first visit to the Savill Garden at Windsor, a crested *D. aemula* and Jack Healey who was with us remembered that he used to stock it in his fern nursery at Bracknell. To our knowledge the Savill Garden plant was the only one still existing and last year when we again visited the Garden I tried to refind it – in vain. It was not looking too happy when we did see it and obviously it has gone the way of so many good things. Since it was seemingly unique, it is a great pity and I blame myself now for not doing something about it at the time.

FERN HUNTING IN WEST AFRICAN RAIN FORESTS

Barry A Thomas

Tropical Africa has always been of magnetic attraction to me as a professional teaching botanist and as a pteridologist. Therefore, it was with great anticipation that I arrived in West Africa on January 1st 1979 to take up a temporary four month lectureship at the University of Cape Coast in Ghana. During this stay I had what seemed to be an endless opportunity to hunt for ferns. So, with the accounts of Adams and Alston (A list of the Gold Coast pteridophyta: 1955) and Alston (The ferns and fern-allies of West Tropical Africa: 1956) and a very useful University herbarium to help me, I travelled many miles and found many ferns.

My favourite trip from Cape Coast was due north for about twenty five miles to the Kakum and Pra Shein forest reserves which are areas of relatively unexploited rain forest at about 600 meters above sea level. I was lucky in being directed to an old logging road that allowed me to penetrate over ten miles into the forest. The whole area was exactly as anticipated, although this seemed to add to, rather than detract from, my general entrancement. The track sides themselves were an endless source of pleasure varying with the slope and drainage. Sometimes they were overgrown with shrubs intermingled with entwining masses of *Dicranopteris linearis* or the endlessly growing fronds of *Lygodium smithianum* or *L.microphyllum*. In contrast, the more open areas were often covered with *Nephrolepis biserrata* spreading by means of its wide-creeping rhizomes. Abandoned forest paths were often completely overgrown by this fern which is perhaps the commonest species in this part of West Africa, even being regularly found growing over the trunks of oil palms. I also frequently found *Ctenitis protensa* and *Tectaria angelicifolia* (members of the Aspidiaceae which also includes a West African *Polystichum* not found in Ghana), *Cyclosorus striata* and *Pneumatopteris afra* (Thelypteridaceae), and *Pteri acanthoneura* and *P.atrovirens* growing either on or near the older tracks. *Selaginella myosurus* similarly was a species that I could rely on finding without too much difficulty as it conspicuously scrambled and twined amongst the smaller roadside shrubs.

Areas of the verges were often covered with another club moss – *Lycopodiella cernuus* (the ground pine) which was instantly recognisable by its small fertile tree-like shoots covered with yellow pendulous cones. It was in fact quite a common species forming ever extending colonies by its curious system of runner-like looping shoots which root at their tips rather like strawberry plants.

Leaving the track and entering the forest I was immediately struck by how easily I could move around between the trees. Here in the shady depths were plenty of treasures awaiting discovery. *Diplazium proliferum* was found to be nicely proliferating in true text-book manner having some of its fronds depressed by the weight of many bulbils. Then in the deeper gulleys I found a number of plants of the primitive *Marattia fraxinea* and one small specimen of the tree fern *Cyathea camarooniana.* One river gulley was particularly fruitful in being virtually covered with countless young ferns which were also growing on and around the boulders in the dry forest river bed. There were many species here, but I particularly remember finding for the first time plants of *Bolbitis acrostichoides* (Lomariopsidaceae) on the banks and *Arthropteris palisotii* (Davalliaceae) climbing over the trunks and low branches of trees. But most of all I can recall seeing the erect shoots of *Selaginella vogelli* standing out from the general green by their blueish metallic sheen.

One feature of hunting rain forest ferns still stands out in my memory even more than venturing into river gulleys. It was the continual searching for fallen trees that might be covered in epiphytes. Looking upwards from the open tracks the crowns of many trees could be seen to be laden with a dense covering of ferns and orchids. But, apart from the larger Stag's Horn ferns, they were unrecognisable at such a distance. Fallen trees and branches were therefore the only sources for such plants. So by examining all I could find I discovered several species that would otherwise have escaped me. There were Stag's Horns – *Platycerium stemaria* with their brown clasping fronds and green fertile fronds, *Asplenium africanum* with its simple undivided fronds and two rows of long linear sori - looking very much like our temperate Hart's Tongue fern, and two members of the Polypodiaceae with creeping rhizomes and naked round sori - *Microsorium punctatum* with simple fronds and many small sori and *Microgramma owariensis* with small simple sterile fronds and equally small but narrower fertile fronds. *Phymatodes scolopendria* - with its sunken sori bulging through from the upper frond surface - was another epiphyte that I found in the more open parts of the forest, although this was also quite a common plant growing on mature oil palms throughout the surrounding countryside.

The other rain forest that I visited for the main purpose of fern hunting was in the Atewa range of hills north of Accra in the Eastern Province. Here the fern flora was even more varied due to the constantly higher humidity. The topography varies between about 350 and 800 meters. The rainfall is high (2000mm or more) and the cloud cover is often low. The result is that there are steep-sided sheltered valleys which are wet and humid even in the dry season. The most famous is the Puso Puso ravine where Adams and Alston record 62 out of the 114 forest species found in Ghana. Indeed, nine species are known only from the Atewa range and five are limited to the Puso Puso ravine Itself. The area was certainly no disappointment yielding many species I had not seen before. Along the tracksides I found *Bolbitis gemmifera* (Lomariopsidaceae) - with little buds located at the base of its terminal pinnules, and large clumps of *Microlepia speluncae* (Dennstaedtiaceae); while further into the forest I found the rarer *Anisosorus occidentalis* (Pteridaceae) and also *Arthropteris monocarpa* (Oleandraceae) which is one of the species confined in Ghana to the Puso Puso ravine. Then in a very shaded damp gulley I found my only filmy fern, *Trichomanes cupressoides* which is one of the eight species of this genus recorded from Ghana. There are no records of *Hymenophyllum* for Ghana and the nearest recorded locality for the genus is southern Nigeria.

The epiphytes were naturally much more varied and numerous in the Atewa range because of the constantly higher humidity. I quickly found two species new to me, both of which were growing at a relatively low level: *Asplenium variabile var paucijugum* on the bases of trees and *Asplenium barteri* on the lowest of their branches. But it was here that I found the epiphyte that I was really looking for. It was *Drynaria laurentii* (Polypodiaceae) with its creeping rhizome giving off two kinds of fronds - larger brown sterile fronds and more divided green fertile fronds.

The tropical rainforest certainly provided me with many rewarding ferns and left me with a feeling of wanting to return. With luck I shall get back and find even more next time.

FERNS & THEIR LIFE CYCLES

Irving W. Knobloch, Ph.D.

Professor Emeritus, Michigan State University and past President, American Fern Society

Most people are familiar with the fern plant as it is ordinarily grown. They know its parts such as root, rhizome and frond with its stipe, rachis and blade. The latter may be simple or divided many times. Others know that this fern plant is called the sporophyte generation because it produces spores contained in sporangia which in turn are sometimes gathered into groups called sori. The spores, under proper conditions, germinate into a prothallus, the gametophyte generation, complete with sex organs.

The sporangium starts its development by cell divisions of certain cells of the leaf. These divisions are followed by the changing of some of the new cells into sporangial wall cells, one or more layers of tapetal cells and one or more inner cells which will eventually become spores.

During these events, the developing sporangium has increased in size to the point where one can recognize it as such. It may or may not have a stalk holding it above the leaf surface.

Although the wall and tapetal cells perform important functions, let us concentrate on the spore producing cell(s) in the innermost part of the sporangium. If we assume that there is one central cell and that a mature sporangium will have 64 spores, then we can project that this one central cell will divide into two cells, these two into 4 cells and so on until there are 64 cells or spores. We emphasize that this is an example and other ferns have a spore number differing from this.

We must go into this matter in a little more detail. Most people know that living cells contain large units of heredity called chromosomes and that these have chemical compounds on them called *genes.* These genes determine the characteristics of the fern plant.

The sword fern has 82 chromosomes in each living cell of the root, stem, leaf and young sporangium but not in the spores. These have only 41 chromosomes.

It is easier to explain why this reduction in number occurs than to give the details of the process. If we look ahead to the gametophyte or prothallus which develops from the spore, we will note that each prothallus has female sex organs or archegonia and male sex organs called antheridia. The former produce an egg apiece with which a sperm from one of the latter can fuse in fertilization. The fertilized egg is called a zygote and it will divide and differentiate into our beautiful fern plant.

Now, if the egg and sperm each had 82 chromosomes, the zygote would have 164 (82+82) chromosomes and twice as many genes. Thus, you see, we need to have a reduction process take place in the formation of the spores to keep the chromosome number constant for that particular species. Otherwise the number would soon be unmanageable. That is "why" reduction occurs.

This is "how" it occurs. We said that the central cell in the immature sporangium had 82 chromosomes. When that cell divides into two cells, each of the 82 split lengthwise so that each of the two new cells will have 82. This is part of a process called *mitosis*. Three more similar divisions take place and now we have 16 cells in the sporangium each with 82 chromosomes. These 16 are called spore mother cells.

Each of the 16 cells divide to produce 32 cells but at this stage 41 chromosomes come to lie alongside their mates (those with genes for the same characters) to end up with 41 pairs. They do not split lengthwise as before. This pairing is part of a process called *meiosis* by some and *reduction* by others. The important thing now is that the 32 cells have the haploid numbe of 41 instead of the diploid number (82) mentioned earlier.

One more step and we are finished. Each of the 32 cells divides by mitosis (including splitting) so that each of the 64 spores will have 41 chromosomes. Each cell of the prothallus (which develops from the spore) including the eggs and sperms, will also have 41 chromosomes in our sword fern (not in many other ferns because they have different numbers). As we have said, th fertilized egg, a zygote, will have 82 chromosomes and thus the fern cycle is completed.

Many ferns have more than the diploid number (they are polyploids) but it is not appropriate t introduce this concept here.

What we have described so far is the normal life cycle of many of the ferns known to us. But years ago it was discovered that some species in the genera *Cyrtomium, Pteris, Cheilanthes, Pellaea, Asplenium* and *Dryopteris,* among others, do not have functional eggs and the new sporophyte arises by cell division from vegetative cells on the underside of the prothallus. In other words, there is no fertilization. This phenomenon is called *apogamy.* Interestingly enough, the antheridia can produce sperms which could fertilize an egg of a sexual species. But let us not lose sight of the fact that in apogamous ferns (about 10% of known species) there is no fusion of sex cells in that species and therefore the young sporophyte coming from a vegetative cell, has the same number of chromosomes as the gametophyte.

Students have also noticed that the cytological events occurring in the sporangium are complicated. Thus, there are variations in the reduction division leading to 64 shrunken spores or 32 functional spores (where such numbers are normal). A great deal of study is needed because not all 32-spored sporangia indicate apogamy.

What is the significance of apogamy? We do not know all of the answers but we do know that some of the species exhibiting that type of life cycle live in desert or semi-desert regions. Naturally the air is less humid and there is a general or seasonal scarcity of water:

we know that water is essential for fertilization. Thus many apogamous species utilize the sexual generation (prothallus) but form the new sporophytes from vegetative cells.

We may say in conclusion that although we have not exhausted the subject of fern life cycles, we do hope that we have brought some measure of enlightenment to this rather academic area. Possibly you can appreciate ferns just a bit more now that you know how their reproductive wants are taken care of.

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THE SPORE EXCHANGE

R F Cartwright

Our new editor insists that I write an article on the Spore Exchange, but what is there to write about? Well, what is its purpose? It is a sort of botanical magnet to attract spores, ordinary, rare, hardy, temperate or tropical from various sources throughout the world. The Exchange then disseminates these spores throughout the Society so that every member has access to quite a large proportion of the world's species, if he has the conditions and the inclination to grow them.

Universities and Botanic Gardens make use of the list for purposes of study or to replenish their losses in laboratories or gardens. Expatriates apparently try for a touch of home. Ordinary members raise spores for garden ornament and interest. Nurseries too are always happy to try something that may have commercial possibilities.

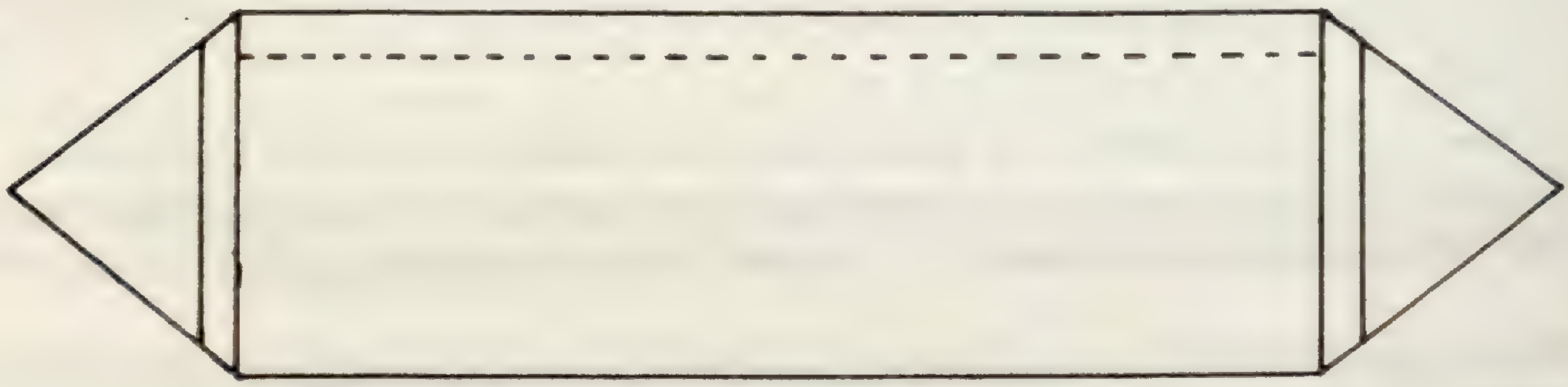
How are the spores obtained? Mainly from members who painstakingly collect the spores from their own plants, or from the wild when on field forays, from University expeditions and Botanic Gardens and from other fern societies. The Japanese Pteridological Society has been particularly helpful for several years, and friends in Australia, New Zealand, Denmark and Germany also contribute from time to time. The standing of our Society is such that no request for spores is ever refused if stock is available.

What is asked for? It is safe to say that every fern on the list is asked for, if only once. Most popular with the amateur grower are the variations of the species, mostly the Athyriums and Polystichums. The smaller growing ferns appeal to the alpine gardeners and to those, so many of us, with small gardens. The mural ferns, variations of Asplenium, Polypodium, Scolopendrium and Ceterach rapidly go out of stock, so does Lygodium, Camptosorus and any 'coloured' fern. Some members with a special interest, such as dryopteris, will always ask for any new name that appears on the list and, like the Universities, they will always want to know if they have been collected in the wild and if so, where and in what type of habitat. The Americans and the Australians are the best customers for the more exotic species, because of course, these need lots of expensive heat in the UK. Surprisingly, mixed spores are quite popular, perhaps it is the gambling instinct coming out!

How is the Exchange run? The Society pays for the printing and stationery, but it is the Organizer's aim, so far successful, to make the list pay for itself, and this has been achieved by donations from happy recipients and slight excess postages; the odd dollar bill that comes along leaves a few cents in hand. Excessive amounts, such as a sterling draft for five pounds sent to cover a postage of 18p, are always returned, so it can be said that the day to day expenses of the Exchange are met by donations and the small margins on postal charges. This fortunate state of affairs may well come to an end with the increase in postal charges, but if members consider they are getting a bargain with their twenty packets of spores and include a few extra pence or, in the case of overseas members, an extra reply postage coupon with their requests the Exchange will continue to function at minimum cost to the Society.

How are spores sent? It is quite difficult to make packages spore proof, and the use of sticky tape to seal the envelopes is not recommended as all the spores gravitate to the sealant and cannot be dislodged and very often few, if any, loose spores are found in the envelope. There is a way of folding a sheet of paper, used by the botanists, to make a spore proof packet. It looks as though done by an Origami artist, but is really quite easy.

Take a piece of paper about 9" x 6", note paper or glazed paper from a magazine is best, fold down the centre lengthways, fold the longside edges over for about 3/8th" twice so that you have a double seam, turn the paper over so that the seam is on the table away from you, fold the top left hand corner down to the base, making a right angle with a diagonal side, the seam pointing down, then fold the bottom left upwards and tuck under the seam, making a pointed end much like a paper dart. Place your spores or fertile pinnules in the long pocket thus formed and then close the packet by folding the right end as the left was done, thus finishing up with a packet like this.



Remember, spores are very light and if you close the packet too smartly they will blow out – quite a few packets come through the post minus their spores! With a little practice smaller or larger packets can be made. Glazed paper is best; newspaper or other porous paper holds the spores in the microscopic holes in their texture.

Collecting spores, from the garden say, is best done by putting the fertile fronds into complete sheets of newspaper, folding in the three sides and putting the sheets under a light weight for a few days in a dry place, when the sporangia should dehisce leaving underneath the fronds a pattern of spore dust which then can be gathered up and put into envelopes and stored until wanted, or better still sent to the Exchange.

Without your co-operation the Spore Exchange cannot go on, and remember that if you have a rare or unusual plant it is better to spread it around among other members in case you lose it, and it is then lost for ever to cultivation.

HORTICULTURAL USE OF EXPANDED POLYSTYRENE (E P)

A E HOARE

In the interest of economy, and sometimes with a desire to experiment, many gardeners have found it necessary to improvise with whatever material may come to hand for work in the garden. In this respect I have turned to the use of the packing material expanded polystyrene (E P), particularly when available in the form of containers. With E P it is possible to overcome the drying out of seed pans and to minimise the time required for attention to their well-being. At times I have had difficulties in propagating plants from spores and seeds, especially as most of my gardening is carried out at the weekends, also I do not possess a greenhouse and have to rely on frames for the cultivation of more tender and difficult subjects. I have been able to obtain containers as large as 3' long x 2' wide x 1' 6" high. These make useful propagating units, while I sow my spores in smaller containers 6" long x 4" wide x 5" high.

I feel that other gardeners may be able to derive advantage from the use of E P., which is becoming a commonplace material, and the following instructions are based on my experience with it.

To adapt the containers for propagation of plants :—

1) An ordinary wood saw should be used to remove sufficient material from the lid of a large container to permit the entry of light. If the lid is at all insecure, fix it permanently in position with a PVA adhesive.

2) Drill 5/16" drainage holes in the sides of the container, one inch above the inside base. (A total of four holes should be sufficient). To prevent garden pests obtaining entry through them, larger holes can be drilled and pieces of perforated zinc fitted.

3) Bore two 3/8" holes through the bases of the small containers and cover the holes with perforated zinc. Use an inch of 3/8" screened shingle as a drainage material. Then fill with a J I compost adding some coarse sand to make a free draining porous type of mixture.

4) Pour boiling water over the compost to give some protection to the spores and seeds against fungi, etc., allowing time for cooling before sowing.

5) Spread a surface covering of grit over the compost to help to prevent the growth of moss.

6) Place the small containers in the large one, into which water should be admitted **slowly** until there is a flow through the drainage holes at the sides. If water is admitted too quickly, the small containers will tend to float.

7) Place a thick glass or perspex cover on the lid of the large container to retain moisture and to give some protection against frost.

8) Apply shading in spring and summer, and top up with water occasionally to maintain humidity.

Using this method I have successfully grown many varieties of ferns, also *Cyclamen libanoticum* and *C. graecum,* various gentians and lillies, with what I regard as the minimum of attention.

E P is a heat insulator, gives good protection against frost and is impervious to water. It does not appear to be adversely affected by ultra violet rays and seems immune from attack by bacteria or fungi. The stark whiteness of E P can be alleviated by painting with a water based silk or matt emulsion. An oil based paint must not be used on E P. Alternatively, coating the containers with adhesives such as Unibond, and then applying hypertufa mixtures (ie – mixtures of cement, sand and peat in proportion 1 x 1 x 2 by bulk) will give a natural stone effect. By the same method suitably shaped containers can be made up for the trough cultivation of alpines and small ferns.

Pieces of flat E P are useful for covering seed propagating units and garden frames during severe frost. The very thin (approx. 1 millimetre) micro sheet type of polystyrene, which is nowadays often supplied as wrapping material, can be most effective in times of severe frost, and will give additional protection inside frames when laid over plants, as indeed can be the polythene air pocket type of packing material which is now becoming widely used. Both of these materials are extremely lightweight. Many formulations of polystyrene have a granular texture and can easily be broken down to small pellets. When mixed with compost they lighten a soil mixture and give an improved aeration of the soil.

Having pointed out the advantages of using E P I must add that one disadvantage, as far as I am concerned, is the amount of storage space it takes up due to its bulky nature.

THE FERN BOOKS OF E J LOWE

Nigel A Hall

The article by C R Phillips about E J Lowe in last year's *Bulletin* (1978) only briefly mentioned Lowe's books on ferns. These books are among the most collected works on ferns and it seems appropriate to follow up the article by Mrs Phillips with some additional information that may be of interest to those who possess, consult or contemplate buying Lowe's books.

Lowe's first and largest work on ferns was the eight volume *A natural history of British and exotic ferns*. According to C R Phillips (1978) it was first published in 1853. According to N D Simpson (1960) it was first published in 1852 and M Morris (1925) gives the date as 1855. The confusion regarding these volumes is not limited to the commencement of publication and anyone who has an early set will be aware of the irregular dating of the volumes. According to the *Publisher's Circular,* a fortnightly journal listing all new publications, *British and exotic ferns* was published by Groombridge and came out in monthly parts. Each part had four colour plates and cost one shilling. Part One appeared in June 1855. At some point before 1857 the publishers began to issue two parts each month. Volume One was completed and published as a complete volume in October 1856.

Lowe's original plan had been to produce the work in seven volumes and each volume would contain distinct groups of ferns. The intention had been to publish the work in numerical and volume sequence but by the time Volume One was completed the plan was changed. Some subscribers had indicated that they felt the work would be more interesting if Lowe 'varied' the content instead of completing a group before commencing the next. The advantage for Lowe in responding to this plea was that if difficulty arose with any species, publication of its description could be delayed until clarification had been achieved. As a consequence, bits from various volumes appeared at odd times. The situation became confusing and eventually a notice appeared in which Lowe stated:

> 'In future there will not be portions of two volumes in the same double number, consequently there cannot be any confusion in arranging the volumes for binding.'

The result of this arrangement was that the volumes were not completed in sequence. According to the *Publisher's Circular,* Volume Three was available as a complete volume in April 1857 and Volume Six in January 1858. Volume Six is actually dated 1857 so it was either issued in December and missed being reported, perhaps because of the Christmas rush of books or, as sometimes occurs, was printed and held over until after Christmas. Volume Two was complete in February 1858, Volume Five in May 1858, Volume Four in January 1859, Volume Seven in October 1859 and Volume Eight in October 1860. A number of reissues occurred, sometimes made up with volumes of earlier printings.

One notable characteristic of all Lowe's colour plate works on ferns is that he consistently omitted to mention anywhere either the artist or printer involved (a characteristic he shared with a number of other Victorian writers on ferns). This is rather surprising, as Lowe recognised that the illustrations had considerable sales appeal:

> 'No class of plants is to little understood ..... partly from the fact that no work exists which being within the reach of all possesses accurate coloured figures.'

It is somewhat paradoxical that for many book collectors today it is the plates which make the books desirable and it is therefore appropriate to remedy Lowe's omissions.

All the plates in the *British and exotic ferns, New and rare ferns* and *Our native ferns* were drawn by Francis Lydon from plants sent to the Driffield printing company of Benjamin Fawcett. Lydon was originally apprenticed to Fawcett as a wood engraver but as his artistic ability became apparent he took over the drawing and engraving of plates. Lydon illustrated many of the books printed by Fawcett, particularly natural history books. Lydon's illustrations are not generally recognised as having particular merit and Blunt does not even mention him in his book *The art of botanical illustration.*

Most credit for the final effect of the plates must go to Benjamin Fawcett, whose colours were unique preparations and possibly the most durable and solid produced by the nineteenth century colour printers. Fawcett, a provincial printer, is recognised by most authorities as one of the finest colour printers of the nineteenth century. Although he was for the most part involved in books printed cheaply and in large runs, the standard is uniformly excellent. Another of Lowe's books *Beautiful leaved plants,* was selected for display at the Paris Exhibition of 1893. This work is considered by Ruari McLean (1972) to be 'one of the finest examples of colour printing of the century.'

Many nineteenth century reviewers were guilty of believing that Fawcett's colour plates were chromolithographs. Even this year I have received a catalogue in which the plates in the *British and exotic ferns* and *Our native ferns* were listed as being 'chromolithographs'. According to Morris (1925) all Fawcett's plates were drawn on wood, engraved on wood and nearly always printed from the wooden block. Only rarely was an electrotype used and that would be when a large flat area of colour was required. Lithography was never used by Fawcett. Much of his work was hand coloured. Even the colour printed plates were often 'touched up' by hand. Of the 479 colour plates in the *British and exotic ferns,* 400 are hand coloured wood prints. Incidentally Fawcett was also the printer of the colour plates of another popular and well collected work on ferns, Shirley Hibberd's *The fern garden.*

The final volume of the *British and exotic ferns* was followed two years later by *A natural history of new and rare ferns,* published by Groombridge in May 1862 at a price of one pound. The comment accompanying the notice of publication states:

> 'The necessity for the volume has arisen from the fact that while the author's previous work on *British and exotic ferns* was in progress, a very large number have been introduced into this country. This book is therefore an addendum to the previous eight volumes.'

This work has 72 colour plates, again drawn by Lydon and printed by Fawcett. It seems particularly remiss of Lowe to again not mention the contribution of Lydon and Fawcett as, in his introduction to *New and rare ferns,* he clearly ascribes the value of the previous book to the effect of the colour plates. The book

> 'has done some good insomuch as the plants in our private gardens are now more correctly named than was the case **before there were coloured plates** within the reach of gardeners to which to refer them.'

Two months before the publication of *New and rare ferns,* the first part appeared of what was to be a seminal work on British ferns and their varieties. In March 1862 the first part of *Our native ferns* was published by Groombridge at one shilling per part. The two volumes of *Our native ferns* contain descriptions of 1,294 varieties with black and white illustrations of 909 of them. The work also has 79 colour plates of species types and varieties, once again drawn by Lydon and printed by Fawcett. The plates in this book are mostly from the two previous works but nearly all those depicting varieties were drawn especially for these two volumes. *Our native ferns* was finally published as a complete work in March 1867 at a price of two pounds twelve and sixpence. The volumes were reprinted a number of times, the later editions, as with the two previous works, being published by Bell who probably acquired the copyright when Groombridge got into financial difficulties resulting in their eventual collapse in the late 1870's.

Lowe's intent in writing this book was

> 'to supply a pictorial want, to make the amateur acquainted with his native ferns without the labour of botanical study.'

Because of this the presentation is simple and straightforward. It does not aim to supply a basis for a system of classification as does his later *British ferns.* The book does not have the illustrative qualities of Moore's nature printed volumes, nor as many varieties as Lowe's *British ferns* but what it lacks in lustre it makes up for in scope. The volumes are essentially a catalogue of varieties of British ferns and as such they serve as a monument to the deeply passionate interest of the Victorian fern growers. The listing of the collectors and the naming of locations follows in a long tradition but the comprehensive nature of *Our native ferns* makes it a unique document.

After *Our native ferns* there was a gap of twenty seven years before the publication of Lowe's next book on ferns, *British ferns and where found.* This was published by Swan Sonnenschein in 1890, having been written in only six weeks. David Allen's citation of this book as 'massive and exhaustive' gives a somewhat misleading impression. It is massive, not in physical size but in the number of varieties named, 1861 by the edition published in 1891. It is exhaustive in that as a list of names of varieties of British ferns it is the longest ever published. There would appear to be little to commend it to the 'young collector', the title of the series in which it was published.

The book's interest lies in two areas. It is, like *Our native ferns,* a tribute to the indefatigable labours of the Victorian fern growers and collectors. More importantly it contains the basis for a classification of the forms of varieties of ferns. Such systems were not new but the popular publication of this system by an eminent pteridologist gave it a distinct status. The system has of course been simplified and classified by later writers from Druery to Dyce but these later systems still owe a structural debt to Lowe's classification.

Although the book appears to be of limited interest, it ran to three editions: 1890, 1891 and 1908. According to the *British Fern Gazette* Volume 7 (8), page 206 (August 1948), copies were still being offered for sale by Allen and Unwin Ltd.

In his concluding remarks in *British ferns* Lowe makes reference to another aspect of his fern activities, that of growing and, in particular, hybridising ferns. This area formed the major part of his final work on ferns, *Fern growing,* published in 1895 by Nimmo and later republished in 1908 in the United States by Truslove and Comba. This is in some ways Lowe's most interesting book. All the books discussed so far are the work of a populariser, a gifted and expert populariser, but nevertheless someone writing saleable popular illustrated works. *Fern growing* reveals the more dedicated scientific interest of Lowe and contains a highly readable account of the history of his experiments and the difficulties of persuading botanists that hybridisation could occur at all. Lovis, in his survey of Lowe's experiments, rightly points out the lack of scientific rigour but also concedes the importance of Lowe's work in initiating study in this area.

Lowe was not the only person interested in this kind of development work and *Fern growing* has an interest that goes beyond the scientific. Part of the book is devoted to discussing the lives and contributions of several other important fern growers. The names of some of these people, Jones, Fox, Clapham, still survive attached to varieties of ferns grown in gardens today and to the contemporary fern grower it is fascinating to read of the men behind the names. The book includes photographs of each of the growers as well as a copperplate engraving of a mature E J Lowe. This book is by far the best produced of all Lowe's books. While Benjamin Fawcett's colour printing was unrivalled, his book design was very poor. *Fern growing* is well designed, clearly printed and pleasing to hold and read.

In addition to the above works on ferns, Lowe planned a series *'The Lycopodiums; British and exotic.* Advertisements inviting subscribers appeared in parts of *British and exotic ferns* but as the series did not appear presumably the requisite four hundred subscribers were not found.

Most of Lowe's books went through several printings, sometimes with different publishers. In 1897 it was still possible to buy new all the colour plate works although not, I believe, from the publishers. The above books were available from Birkenhead's fern nursery. Birkenhead was also offering for sale loose colour plates from the *British and exotic ferns.* The buyer could purchase a selection of two hundred and fifty for fifteen shillings. They probably came from sale of the stock of Benjamin Fawcett whose family business had collapsed within a couple of years of his death.

Lowe's books are available today but of course at some cost. All the books discussed have appeared on the market during the last year but to acquire a copy of each would have required a minimum outlay of around two hundred pounds.

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POLYSTICHUM SETIFERUM 'PULCHERRIMUM BEVIS'

J W Dyce

In the *Bulletin* for 1976, Volume 1 no 4, Peter Corbin gave us a timely reminder that it was the centenary year, as a cultivated plant, of 'Bevis', the shortened name by which this fern is affectionately known to its many growers and admirers. During all that time, since it was found, there has been much questioning over the correct specific name of the fern. The dark glossy pinnules and strong rigid growth suggested it was a variety of *Polystichum aculeatum,* and so it was named, but among many of the prominent fern men of the day there was a strongly-held opinion that it was *P. angulare,* the name by which *P. setiferum* was known at the time. Dr F W Stansfield was a leading supporter of this view. However, "chromosome counts" were unknown at the time and it was not until about 80 years later that the first one was made. The Rev E A Elliot (then Secretary of the Society and Editor of the *British Fern Gazette*) mentions in the 1956 issue of the *Gazette* (Vol 8 no 7, p.167) that a count was made by Professor Shaw at the Oxford University Botany School. This gave a result of 58 chromosomes with a possible error of 2 each way. This figure did not conform in any way with the correct ones of 82 for *setiferum* and 164 for *aculeatum,* although obviously much nearer to the former. There the matter rested until I eventually persuaded Dr Mary Gibby in 1978 to do a count for me. She came up with the definite finding that the fern is a variety of *P. setiferum* and not *P. aculeatum,* so now we must change all our known ideas about it and see that in future writings it is assigned to its correct species.

It is fitting that the fern should enter into its second century under its correct name, and fitting that we should celebrate the event by giving a full write-up in the *Bulletin* to one of the finest fern varieties ever found, existing today still as popular, strong-growing, widely distributed and easy to propagate as ever. Considering the vicissitudes of fern variation during the past 50 years or so, this is quite something, equalled by only a very few of its compeers. The story of 'Bevis' and its very remarkable progeny has been fully told in successive early issues of the *British Fern Gazette* but these are not in the hands of many members, which gives me a good excuse to bring all the bits together into one article.

Polystichum setiferum 'Pulcherrimum Bevis' was found in 1876 by John Bevis, growing in a hedgerow near Hawkchurch in Devon. In the terminology of his day he was described as a "common labourer" but obviously he was something more than that name might imply today and had an eye for the unusual in plants. The fern was removed and the whole clump of 6 or 7 crowns given to Dr Wills who lived in the area and whom he knew to be interested in ferns. Dr Wills was one of the foremost of the early fern-hunting pioneers and fully recognised the value of the find; although the finder of many good varieties himself he was forced to admit that this fern surpassed anything he himself had ever found. It was large-growing and very graceful, with dark glossy pinnules almost silky in appearance and long and curving, so much so at the frond and pinnae terminals that their overlapping gave a beautiful plaited effect to long slender tips. The hard glossy texture of the fronds suggested that it was a *Polystichum aculeatum* and it was named *Pulcherrimum* because of its outstanding beauty, followed by

Bevis the name of the finder. It was - and still is - a good strong-growing fern, generous with its offsets, so it was quickly established in the fern collections of the day and attracted much attention.

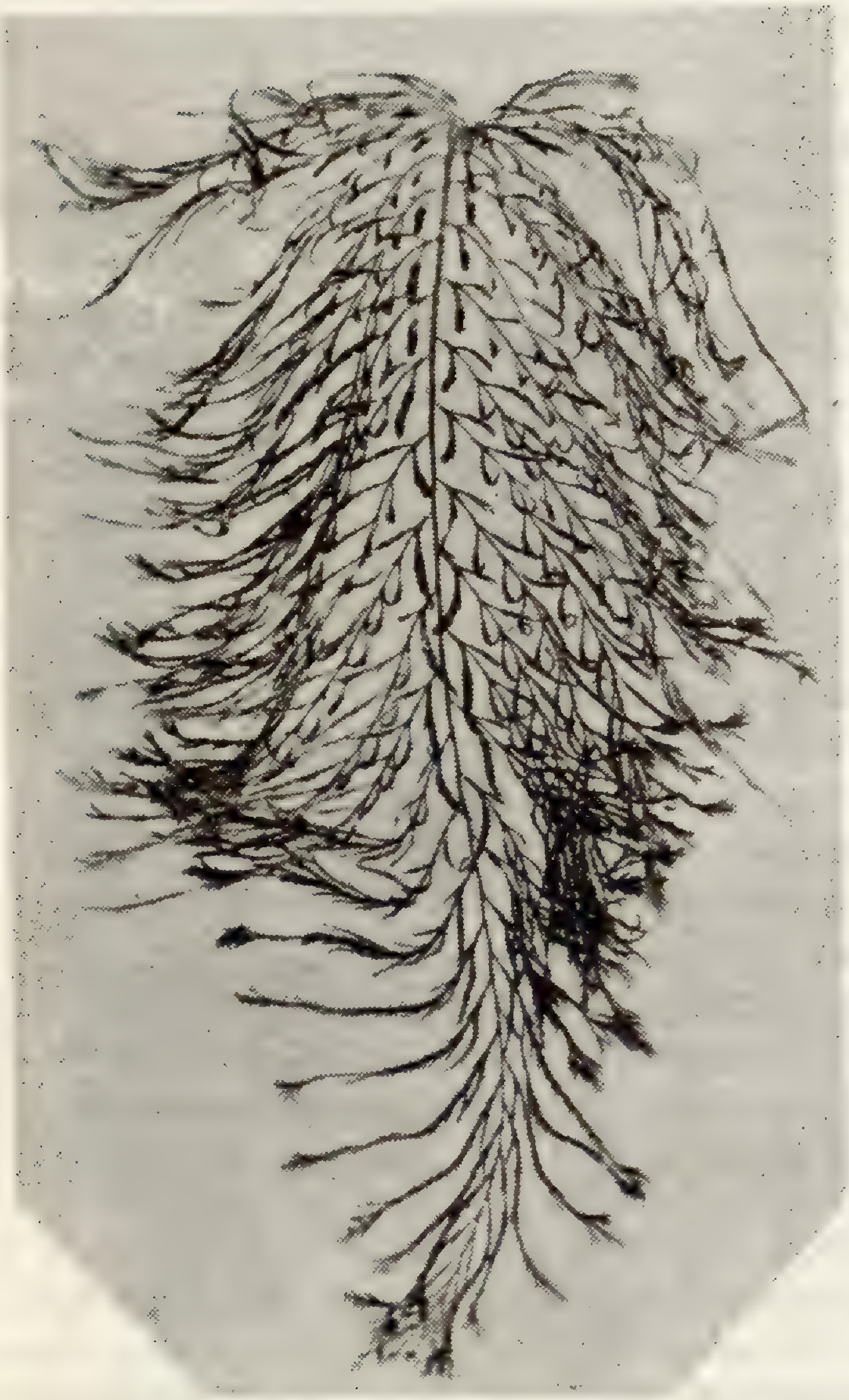
Writing in the *Gazette* in 1954, Greenfield states that it was recognised that the name *Pulcherrimum* was an unfortunate choice since this adjective is used with *setiferum* to denote a capacity to produce prothallic extensions without artificial encouragement. But for the confusion likely to be caused by changing the name, it would probably have been replaced by *plumosum.* In view of the recent development this is even more apposite since we now have a variety named *pulcherrimum* which does not qualify for inclusion in this small very exclusive specialised section of variation in *setiferum.* Also, as I shall explain in the next paragraph, 'Pulcherrimum Bevis' is barren or nearly so, and is therefore a true *plumosum.* Taking all these facts into consideration, I would suggest we seriously think about changing the name to *Polystichum setiferum* 'Plumosum Bevis'.

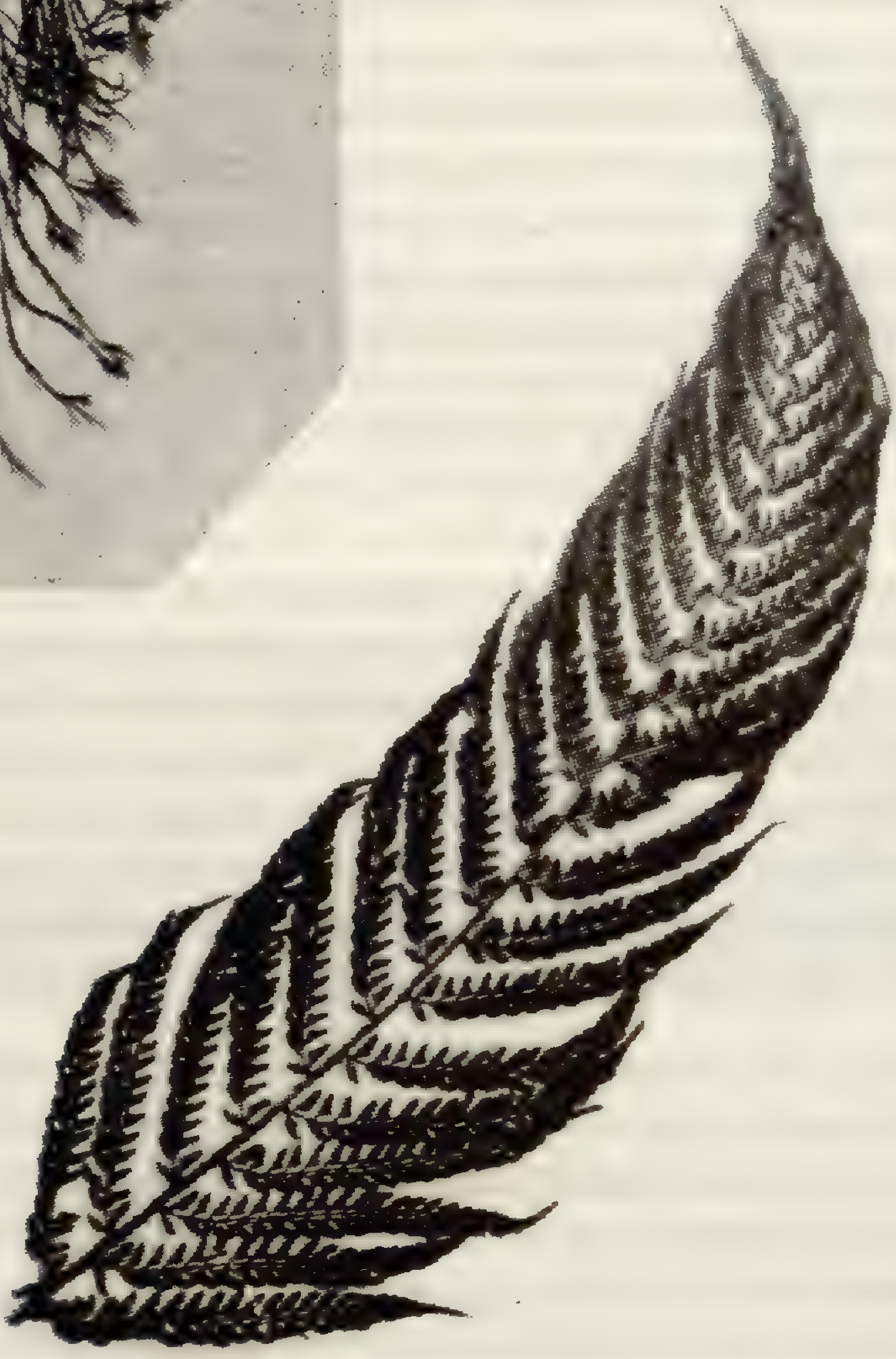
Unfortunately, although a strong grower, the fern was completely barren, or so it appeared, and for 30 years it was grown and spread around among fern growers only by means of its generously produced offsets, until a visit paid by Dr F W Stansfield and C T Druery to C B Green who owned a particularly fine specimen. It had been known for some time that very strong grown plants of barren ferns could occasionally produce minute spore heaps, composed of a single sporangium almost invisible to the naked eye, and when this topic cropped up in the conversation it was inevitable that Green's well-grown 'Bevis' should engage their attention. Sure enough, a careful scrutiny under a lens revealed several of these resembling black dots and, being ripe, they were collected and sowings made by both Druery and Green. The results were remarkable and excelled all their expectations.

About a hundred young plants were obtained, around 20 of them appearing to be very different from the others which resembled, more or less, the parental type while a few even appeared to approach normal *P. setiferum.* The exceptional ones appeared to be much more slender and as they grew they became more and more remarkable and eventually developed into most handsome plants of an entirely new and different type. They varied greatly in character, the least exceptional being a very refined form of the parent with longer, more divided pinnules which was named 'Pulcherrimum Druery'. The more extreme forms were named 'Gracillimum', having long attenuated pinnules, and some went even further and were, to quote Druery, "of wonderful delicacy of cutting, the parental half-inch pinnules being extended sometimes to 3 inches and of almost hairlike tenuity, with splayed tassel-like terminals". These were named 'Gracillimum cristulatum'.

In Green's sowing was one plant which varied in a different direction and resembled the finely cut divisilobums. Named 'Pulcherrimum Plumosum Green', it is still grown although I am sorry to say my plant faded away a few years ago and I have not yet got another. Some years later J Edwards made a sowing from spores found on his 'Bevis' and again the unexpected happened. This time there were no *gracillimums* or anything like them but several plants which went to the other extreme — instead of being narrow and tenuous the pinnules were wide, overlapping and foliose. The variety was named 'Pulcherrimum Foliosum Edwards' but I can find no record that it continues to exist. A strange fact about 'Bevis' is that although it has been proved to be a *setiferum* all its progeny, like itself, tend to more resemble *aculeatum* in the colour and texture of the fronds.

Today, as well as 'Pulcherrimum Bevis'. we still have 'Pulcherrimum Druery' which sometimes is difficult to differentiate from its parent except when it is well grown. I have come to the conclusion that the name is a section one and that Druery distributed the





Top — Polystichum setiferum 'Gracillimum cristulatum'
Bottom — Polystichum setiferum 'Pulcherrimum Bevis'

many similar plants which came up in his spore sowing under this name. Consequently, some are more widely removed from the parental form than others and except in very good growing years when the characters become well developed I have great difficulty in differentiating between my plants of 'Bevis' and 'Druery'. This year at Southport Flower Show our member R Trippitt had on the show bench a magnificent plant of what must be regarded as the true 'Pulcherrimum Druery'. The pinnules are longer than in 'Bevis', very narrow and finely segmented, the lower ones much longer than the upper and very falcate or sickle-shaped; consequently the plaited appearance of the pinnae throughout half their length is much more pronounced than in 'Bevis', all adding up to make the plant one of extraordinary beauty.

The *gracillimums* still survive — at least the less finely developed, and consequently more hardy, ones do. One has been growing with a minimum of attention in my garden for many years, regularly producing a crop of fronds about a foot in length and outward spreading. It does not have the rigid upright habit of its parent nor does it form offsets. While this type is to be found fairly frequently in collections I doubt if anyone at present grows any of the extremely developed but very "miffy" *gracillimum cristulatums* which definitely need the protection of the fern-house. For many years I had a beautiful specimen, handed on to me by my predecessor in the secretaryship of the Society, the Rev E A Elliot. It was a proud possession, growing indoors in a pot and the number of its fronds increased year after year - being evergreen they lasted a good two years. Alas! one year it began to sulk, and nothing I could do could save it. It was probably the last of the very extreme form of 'Gracillimum cristulatum', equally as fine as the one depicted here.

However, I do not cry over the loss of this fine fern. In the last few years reports have reached me of members finding spores on 'Bevis' and what the parent has produced in the past it will repeat again. My only sowing of spores from one of my plants produced over a hundred *gracillimum* sporelings but during an absence in particularly hot summer weather I lost all of them except two which I grew on to adult size but they were extremely "miffy" and took the first opportunity to follow the rest of their companions into oblivion.

Members who grow 'Pulcherrimum Bevis' should keep a close watch on the fronds of well-grown plants. Like me, you may find a few full-sized spore-heaps but more likely it will be what Druery and Green found - minute dots each consisting of a single sporangium which will only be detected with the aid of a magnifying glass. Grow them on and fern treasure will be yours.

FELIX MARS FILICES, OR MEMOIRS OF A PTERIDOFIGHTER

Richard Rush

I regularly wonder, as I walk round my pocket handkerchief (gents) sized estates, picking up the beer-cans and half-eaten apples which get chucked over the wall, and inspecting the damage done by aphids, sawfly larvae, caterpillars, slugs, snails, and (unquestionably the most dedicated and destructive of pests) cats, to say nothing of the havoc wreaked by the whirlwinds and hurricanes which are a feature of this garden, I wonder that the ferns, so frequently described as trouble-free in horticultural literature, have survived at all. It seems unlikely that mine are the only ferns to be afflicted with aphids well into December, and to be still providing sustenance for (unidentified) caterpillars when the ground is covered with snow and the water butt frozen solid. It seems improbable that it is only amongst the local population of cats that the mere sight of a fern apparently triggers off what might be tastefully described as a laxative reflex. Even dogs, I might add, leap over a succession of fences in order to romp across my collection. Clearly, for some reason which researchers have yet to identify, Nature has handed the black spot to certain plant groups, and ferns are high on the list of the cursed. We have only to look at the fate of fern collections: ordinary collections, if surrounded with moats and patrolled by security guards, may survive, but no sooner do they become of irreplaceable excellence than man's bulldozers, and Nature's equivalents, start revving up. Look too at the way in which our esteemed new *Bulletin* editor sheds his normal Clark Kent persona when in the field and sets off faster than a speeding bullet up sheer cliff-faces or through solid undergrowth: he realises that if there is a *Polystichum aculeatum cruciatum pulcherrimum proliferum* in the vicinity it can safely be assumed that the nearest tree is about to fall on it. And yet it's equally clear, once one begins raising ferns from spores, that they are determined to survive. Through ignorance of so pure a kind as to be almost indistinguishable from a spirit of scientific enquiry, I've subjected my spore sowings to all kinds of maltreatment (short of flame-gunning), but I've generally found that, like those indestructible film monsters, they are not easily exterminated. One of my first sowings was made on over-enthusiastically firmed compost, which for reasons which now elude me, I sprayed copiously with water – after sowing the spores. The water stood on the concrete-like surface and had to be poured off. Yet, long after I'd grasped what I'd done wrong, long after the development of black slime —about 16 months later in fact – a few prothalli began to appear, and, as soon as I moved them into more congenial conditions, seemed happy enough to forgive and forget. In one such case – a sowing of a Harts-tongue variety – I had to wait 2 years and 2 months before the prothalli were of sufficient size to be moved. Other sowings have been experimentally made on soil-less composts – which retain moisture about as effectively as a sieve and are impregnated with the boiling water resistant eggs of a tiny fly. Yet other sowings have endured moulds, mosses, liverworts (though most usually, I believe, introduced with the fern spores), and the scorching effects of inexplicably flexible sun rays. Naturally I've gradually learned by my numerous mistakes, but there still remains a considerable hit and miss element. It was certainly through no fault of mine that the Post Office (I can only suppose) used a horse and cart to transport some *Osmunda* spores from Matt Busby. Nevertheless, although I've made many sowings since my first attempts, and though many of my sowings still have a long way to go, I have not – so far – had any complete failure. There will, I've no doubt, be failures in the future, and I cannot guarantee the survival of every tiny fern which I've raised, but – and this is the point – I have learned that even though raising ferns may seem to be a matter of great skill, it is unlike, say, high-wire walking in that it's often possible to recover from blunders. If spores generally have a lengthy period of viability, so, it seems, do prothalli: even after an extended stay in unsuitable conditions (short of, I suppose, total drought) they seem capable of responding to rehousing. With my many mistakes still fresh in my mind it's perhaps not inappropriate that I should urge newer recruits to the Society to try their hand at fern raising – and to bring their surplus gems to meetings! It's a curiously exciting pursuit: I'm as convinced now that some fifty per cent of what I'm raising will develop into sensational new varieties as when I started. The peculiar interest of watching the development of ferns which you have only seen in illustrations (or not at all) does not diminish – nor does the challenge of identifying the species and varieties which appear as bonuses in so many sowings. Every so often a sowing of a variety will give rise to ferns which, at an early stage, are discernably diverse: watching their progress – at half hour intervals – you can easily forget about work, eating and sleeping. Even if you are intent on remaining discriminating, you will probably need to have raised one or two thousand ferns before necessity forces you to look critically at home-grown depauperate plants, and types of variation which you suppose do not appeal to you look strangely attractive when they occur unexpectedly among your sowings. That your friends may consult their watches with increasing frequency and may suddenly remember urgent reasons for curtailing their visit as you explain the stupendous possibilities of a quarter inch high fern, that the people in your street hastily withdraw into their houses when they see you coming with your photo album of ferns you have raised tucked under your arm, is a small price to pay.

SOUTHPORT FLOWER SHOW 1979

J W Dyce

There was an excellent display of ferns in the 14 competitve classes this year, largely due to the efforts of Bob Trippitt whose entries swept the board and resulted in his getting 9 first prizes, 2 seconds and one third. All his plants were well grown and thoroughly deserved the awards. In addition, he won with extreme ease a new silver challenge cup, the Wilf Griffiths Trophy which was awarded for the first time this year to the competitor with the highest number of points in the Classes 8 to 20. As usual, John Brookfield and Son (Noel Brookfield) won the British Pteridological Society Silver Challenge Cup with his group of hardy British ferns in Class 7. The 3 entries in this class were smaller than usual (a reflection on today's excessive transport costs) but the ferns in the cup winning entry and the second by Rodney F Brookfield were well grown and consisted of a selection of the best lady fern cultivars, which predominated, and some *Polystichum setiferum* varieties, *Osmunda regalis* and other smaller species. The third entry was extremely poor and in my opinion did not deserve the third prize which it received.

In the other classes for hardy ferns the usual well-known old varieties predominated, *Athyrium filix-femina* 'Clarissima', 'Victoriae' and 'Frizelliae', *Dryopteris filix-mas* 'Linearis polydactyla', *D. pseudomas* 'Angustata-cristata' and 'Grandiceps Askew', *Polypodium vulgare* 'Cambricum Barrowi', 'C. Hadwini', 'Cornubiense' and 'Omnilacerum Oxford', *Asplenium scolopendrium* 'Crispum Bolton' and 'Angustato-marginatum', and *Polystichum setiferum* 'Plumoso-divisilobum Densum', 'P-d. Iveryanum', 'Pulcherrimum Bevis' and 'P. Druery'. Adiantums were a popular choice in the greenhouse and foreign fern classes. Many very fine specimen plants were on show, and to me the best and most interesting was Bob Trippitt's magnificent *Polystichum setiferum* 'Pulcherrimum Druery'. So often, specimens of this variety are very little different from the parent 'Bevis' - it would seem that Druery did not select a single plant from his spore sowing to bear his name but allowed a selection of plants, some better than others, to be distributed as 'Druery'; or it could be that recipients of the lesser plants themselves named them after the donor. Bob Trippitt's specimen is the REAL thing and shows what 'Pulcherrimum Druery' should truly look like.

The prize-winners are listed below in order of winning -

Class 7	Group of hardy British Ferns arranged naturally in an area not exceeding 100 square feet J Brookfield and Son, R F Brookfield, W W Howarth
Class 8	Six hardy British ferns (dissimilar) R Trippitt, J Brookfield and Son
Class 9	Six greenhouse ferns (dissimilar) J Brookfield and Son, (no second award), W W Howarth
Class 10	Three hardy British ferns (species only, not varieties) R Trippitt (no second award)
Class 11	Three foreign ferns, hardy in Great Britain R Trippitt, J Brookfield and Son, R F Brookfield

Class 12	Three scolopendriums R Trippitt, M Tordoff
Class 13	Three polypodiums R Trippitt, J Brookfield and Son, R F Brookfield
Class 14	Three polystichums R Trippitt, M Tordoff, J Brookfield and Son
Class 15	Three athyriums M Tordoff, R Trippitt, J Brookfield and Son
Class 16	Three dryopteris R Trippitt, M Tordoff, J Brookfield and Son
Class 17	Three plants, gymnocarpium, phegopteris and/or thelypteris R Trippitt, J Brookfield and Son
Class 18	Three aspleniums, excluding Asplenium scolopendrium B Russ, R Trippitt, M Tordoff
Class 19	One British fern R Trippitt, M Tordoff, A R Busby
Class 20	One greenhouse fern J Brookfield and Son, A R Busby, R Trippitt

The British Pteridological Society Trophy – J Brookfield and Son
The Wilf Griffiths Trophy – R Trippitt

The Fern Judge was Mrs Hazel Key of Fibrex Nurseries, Evesham, Worcs.

The Society's Stand in the Societies' Tent was manned this year by the Secretary, assisted by the President, with part-time help from Nigel Hall and Bob Trippitt. We had a very pleasing succession of visiting members, particularly on the first day; in all, 20 called on us. The Stand was decorated with pot ferns and vases of fronds. The Secretary had a magnificently grown specimen of *Osmunda regalis* 'Cristata' standing well to the front and this attracted much attention. He also had an exhibit showing the development of ferns from the spore onwards – this encouraged many questions from curious passers-by and consequent "lecturettes" by us.

We all felt it was a really good Show this year, in spite of a cold and steady rain on the first day, and we hope the fine display in the competitive classes will help to stimulate an increasing interest in ferns.

A GOOD COLOUR FILM FOR PTERIDOLOGISTS

Barry A Thomas
and David S Edwards

Ferns are amongst the most difficult of all plants to photograph in colour because of their habit of growing in shady places. Ektachrome 400 has recently been released on the market and is especially useful for our purpose in producing good quality colour transparencies. But its real value lies in its ability to be taken at 800, 1200 and 1600 ASA, providing of course that it is specially processed. Photographs taken at 1600 in dark tropical rain forest gulleys have given good results with no noticeable loss of contrast in the greens. It thereby allowed ferns to be recorded in their natural habitat with no difficulty and without the use of time exposures or flash equipment. The ASA rating naturally cannot be altered in mid-film and the higher speed settings are impractical in high light intensity, so some forward planning is necessary. Films can however be removed and replaced with care if necessary, resulting in only a small loss of transparencies. Price is an extra factor to be borne in mind. Special processing and the necessary mounting will amount to about double the normal cost of a film such as Kodachrome.

THE HOME GARDENER'S BOOK OF FERNS by John Mickel with Evelyn Fiore, 1979. A Ridge Press Book. Holt Rinehart and Winston, New York. 256 pp, 208 x 134 mm, 88 black and white photos, 18 line drawings. Price, paperback edition US dollars 7.95.

The author is Curator of Ferns at the New York Botanic Garden and is a fern grower as well as a fern botanist, so he is well equipped to write a first-rate authoritative book for the gardener. Of course, it is written primarily with the American grower in mind but ferns know no international boundaries, and its application is just as valuable on this side of the Atlantic.

Thumbing through it, we note chapters on ferns generally, their reproductive processes and how to grow them from spores and other means. Indoor and outdoor cultivation is covered, giving up-to-date information and expert guidance for the growing of most of the popular species, and the chapter on fern haunts and habitats in the wild augments this information. The Author takes us into the field on fern trips and forays, with much information helpful for the collector in the ferny places of the world, but he sounds the necessary warning that we cannot go just where we will and dig up everything in sight. Ferns are protected plants in many countries and in addition there are import regulations controlling the import of plants, which have to be complied with. World fern societies are listed and a most useful chapter, entitled "Ferns round the world", catalogues, with information about them, botanical and other gardens, arboretums, parks and other fern areas throughout the world giving public fern displays — a most useful guide for the fern enthusiast when he travels abroad.

The book is a most readable one, written by an enthusiast, and I confidently recommend it to all our growers as one which will not just sit idly on the bookshelf. A few copies of this book are available through our Booksales.

FERNS by Philip Perl and the Editors of Time-Life Books, 158 pp, fully illustrated in colour. 217 x 280 mm. Time-Life Books, Alexandria, Virginia, USA. European edition 1979. Price £6.50.

In the last issue of the *Bulletin* (Vol 1 No 6) Alison Rutherford reviewed the American edition of this book; her review was a considered one since an European edition was in preparation. At the time I made a point of contacting the London Office of the publishers pointing out that the American edition was full of errors which should be corrected before the European one was published. I was assured that this was being taken care of by "consultants" in this country and on the Continent and an offer of help from one of our leading fern botanists was not taken up. Instead they were content to rely on the services of well-known gardening authorities for advice. BUT, there is very much more than gardening expertise required when dealing with ferns — they are very much outside the normal run of garden plants and require a specialised knowledge of botany as well as cultural skills when writing about them. The gardening world is still content to use names long out-of-date and misleading. How often do we shudder at the nomenclature used in gardening journals and daily papers by people who should know better, and this book is just another example.

After hearing his reactions to the American edition I sent a copy of the European one to the fern botanist referred to above. He sent me back a long list of errors from only 3 pages of the book under the heading — "A few pages dipped into only at random; it would take weeks to correct every mistake". He stated that the text of the whole book, judging by these random dips, needs rewriting by a competent pteridologist. It seems to be nothing short of a catalogue of errors, not just out-of-date names, which, with the sale of the book, will be propagated.

I cannot resist giving a few examples. On page 8 we are told that frond division ends "with a thrice-cut frond ...... Although growers have succeeded in producing fronds cut four and even five times, these cultivars, left unattended, automatically revert to a more stable thrice-cut pattern". Well, well! what price our multi-divided polystichums and athyriums found in the wild, **unattended by man**, over 100 years ago and still going strong, many of them refound in old deserted gardens and still as good and multi-divided as ever after a life-time of neglect! On page 130 I am impressed by the magnificent proportions of *Asplenium* (not *Phyllitis*) *scolopendrium* 'Crispum Nobile' (I presume they mean 'Crispum Bolton's Nobile) with fronds 2 feet long and **4 feet** wide! Since the metric measurement is also given, this cannot be excused as a printers error for 4 inches. One more example — the fern masquerading as the Killarney Fern, on page 143 is more likely to be *Trichomanes boschianum.*

Alison Rutherford also sent me 2 foolscap sheets listing some of the errors spotted by her.

This book cannot be regarded seriously as a *fern* book, but as one containing pretty fern pictures. As such, and that only, it is an excellent production and possibly worth the £6.50 asked for it. The standard of production is high and pleasing and no doubt it will be purchased solely for its "coffee-table" attraction.

FERNS by Reginald Kaye, 1978. Wisley Handbook no 32, The Royal Horticultural Society, London. 40 pp, 149 x 210 mm. 20 Black and white photos. 3 line drawings. Price 70 pence.

This book is one of the latest additions to the Royal Horticultural Society Handbooks in the Wisley Series. It has been written by Reginald Kaye, the author of *Hardy Ferns* and a nurseryman specialising in ferns for over 50 years. In the limited amount of space at his disposal the author had to be very concise but he has succeeded in giving us a most useful and comprehensive production on his subject. After dealing briefly with the place of ferns in the plant kingdom and some of the more garden-worthy species and their natural habitats, he goes on to discuss siting and preparation for outdoor planting, growing in pots and in the home, and the maintenance of ferns. There is a chapter on spore and vegetative propagation, followed by the main part of the book, which is an alphabetical selection of species and varieties of hardy ferns. This list includes descriptions and cultural information, suitable for temperate parts of the world. He concludes with a chapter on variation in the British ferns and a classification of the kinds of variation.

This is a most useful "potted book" on the subject of ferns, which the grower will find valuable, and coming from the pen of Reginald Kaye he can be sure that the contents are accurate and dependable. This book is available through Booksales.

FERNS FROM MOTHER NATURE by James E Gick, 1977. Gick Publishing Inc, California. 40 pp, 275 x 213 mm, 143 colour photos, 8 line drawings and diagrams. Price, paperback, US dollars 2.50.

This is another of the small colourful fern books which are being produced in the USA these days, catering for the tremendous upsurge of fern interest which has gripped that country during the past decade. It is, in effect, a fern album, depicting in excellent clear colour photography, an alphabetically arranged collection of ferns suitable for growing indoors and outdoors, in beds, pots and hanging baskets. Underneath each picture is a description of the fern and brief concise information on culture, including light, humidity, water and feed requirements, together with methods of propagation. There are also separate chapters dealing fully with all these matters, all written in a clear concise manner.

Altogether, the booklet is an easily assimilated useful addition to the fern library and in this country, as well as in the USA, should prove very helpful for the recognition and growing of the increasing number of the very beautiful indoor and greenhouse ferns which are now obtainable by the collector and grower of these plants.

The price is a very modest one, considering the large number and fine quality of the colour plates. So far, I have not been able to get copies for our Booksales, but I am working on it.

FERN GROWERS MANUAL by Barbara Joe Hoshizaki, paperback edition 1979. Alfred A Knopf, New York. 256 pp, 285 x 220mm. 300 photos and drawings. Price US dollars 7.95.

In the *Fern Gazette* Vol 11 part 4 1976, I reviewed this excellent book which was published at US dollars 15.00. Now, Knopf have published a paperback edition at a substantial reduction in price, which should bring the book well within the reach of many who hesitated to pay the higher price.

The new edition is the same as the earlier one, except that it lacks the 8 pages of coloured plates. It encompasses a vast range of fern information and can be recommended to all lovers and growers of ferns. The Author, Professor Hoshizaki, teaches botany at the Los Angeles City College, is Curator of ferns at the University of California at Los Angeles and President of the Los Angeles International Fern Society. As well as being a well-known botanist she is a keen and knowledgeable grower of ferns. Although written with the American reader in mind, the book has a world-wide application and has much to offer the British pteridologist.

Fuller information can be obtained from my earlier review in the *Fern Gazette.*

FERN NURSERIES

J W DYCE

In this country we continue to have only two well-established specialist fern nurseries, Reginald Kaye, Waithman Nurseries, Silverdale, Carnforth, Lancs., and Fibrex Nurseries Ltd., Harvey Road, Evesham, Worcs. A well-known one in past years was Perrys Hardy Plant Farm, Theobalds Park Road, Crews Hill, Enfield, Middlesex. Under new management they have now rejoined the Society and we hope they will again take their place among the fern specialists which are sadly so few in number.

On the Continent, Firma Norgaards Stauder, Hovedvej 10, Lilballe, 6000 Kolding, Denmark specialise in hardy ferns and issue fern lists. They have been members of the Society since 1971. This year a West German nursery, Johann Lendvai Lintner, 6313 Homberg/Ohm 3, Nieder-Ofleiden joined us. They issue a comprehensive catalogue of fern varieties, a large number of them British. Their latest catalogue of 56 pages quarto, listing 116 ferns, has just reached me. There are 42 black and white photos and 10 line drawings filling 26 of the pages. Another newcomer to our ranks is the old-established nursery of Johannes Lemkes, Hoorn 422, 2404 HL Alphen a/d Ryn, Holland; they are widening their interests to include hardy ferns and their varieties, and have been acquiring stocks from this country.

Further afield in South Africa which is now beginning to become fern-minded, we have recently recruited Mrs Di Turner who has launched a fern nursery under the name of Ferns for Africa at Strawberry Hill Farm, George 6530, South Africa. She is keen to establish outlets in Britain and other countries. In this issue of the *Bulletin* Di Turner gives us a delightful account of the tribulations which led to the establishment of the nursery and how it has succeeded.

MEMBERSHIP ANALYSIS AS AT 31/10/79

Philip Coke

1. **Total of Members & Subscribers :**

Paid up –	Receiving the Gazette	509
	No Gazette	61
Honorary		8
Total		578

2. **Overseas Members & Subscribers :**

253 from 35 countries.

Leading countries –	USA	84
	Australia	35
	West Germany	18
	Switzerland	14
	Japan	12
	South Africa & India	9

3. **Subscribers :**

Universities, Museums, Botanic Gardens and other Research Establishment –

In UK	31
Overseas	68

4. **Biologists etc. connected with educational and research bodies** 89

The actual number many be considerably more than this but it is not apparent from details given

5. **Students :** 20

6. **Nurseries :**

UK	7
Overseas	7

NEW FERN SOCIETIES IN AUSTRALIA

J W DYCE

For some years now there has been a strong upsurge of interest in ferns in Australia and our membership in this Continent has quickly risen to 35. I have taken a keen and active interest in this development and have done my little bit to help matters along by correspondence with members and by supplying each with a complete list of their fellow members so that contact can be made if desired. In so doing I have made several personal friendships which I value greatly.

Now the interest is escalating rapidly and this year two of our members, Chris Goudey Lot 8 Cozens Road, Lara, Victoria and Alan Mortimer, P O Box 594, Gawler, South Australia, have launched new fern societies in their respective states, both with initial memberships of over 200. I am still waiting to hear the final details from Alan about his South Australian Society, but Chris has written to me as President of his one, the Fern Society of Victoria, which is progressing well with now over 300 members.

As President of our Society I have sent presidential as well as personal greetings to both societies, and extended invitations to affiliate with us so that we can participate in an exchange of journals. We look forward to hearing much more of these societies and through them learning more about the fern riches of Australia. Greetings to both of them and may they flourish greatly.

In addition to these new societies there is also in Australia the Fern Study Group of the Society for growing Australian Plants, which can be contacted through Mr S C Clemesha, 18 Wesson Road, West Pennant Hills, New South Wales 2120. This also has a strong membership exceeding 200 according to the last reports received by me.

NOTE

Nigel Hall has for sometime been compiling a bibliography of books on ferns and fern allies. This should become available during 1980. He would like to add two supplements, one dealing with fern nurserymen's catalogues and the other dealing with published albums of pressed ferns. He would very much like to hear from everyone who has examples of either of the above.

> If a fern catalogue please let him know (if possible) —
>
> Full name of nursery — full name of nurseryman(men) — size — number of pages — whether illustrated — some idea of content i.e. British/exotic etc.

He is also interested in general catalogues which contain sections on ferns and would like the same details as above plus, the number of pages devoted to ferns.

> If a fern album please let him know (if possible) —
>
> Title — compiler — when and where published — number of pages — number of ferns — some idea of content i.e. 'all New Zealand ferns'.

He would be particularly interested to hear from anyone who wishes to dispose of fern nurserymen's catalogues. His address is 3 Sydney Road, Bramhall, Stockport, SK7 1NH.

GUIDELINES FOR LEADERS OF FIELD EXCURSIONS

M H RICKARD

1 CHOICE OF CENTRE :— Choose an hotel as inexpensive as possible but tolerant to the whims of pteridologists — and preferably licensed.

If the local AA/RAC hotels are too expensive it is worth trying the region's tourist office for lists of smaller hotels and guest houses. From these lists it should be possible to recommend alternative accommodation for the inevitable late bookers.

Also, if possible, give the address of a local campsite.

2 AT LUNCHTIME :— It is as well to organise the day so that food can be purchased — most popularly in a public house. If a day's walk is planned give notice the previous day so that packed lunches can be organised.

3 DO NOT TRAVEL UNNECESSARILY LONG DISTANCES :— This is particularly true in fern rich parts of the country where areas near the centre might well repay searching.

4 KEEP THE NUMBER OF CARS TO A MINIMUM :– Encourage members to double up; where this is possible passengers must offer to share the cost of transport.

5 AVOID LENGTHY CONVOYS :– If possible split the party up into small groups each with at least one map reader armed with the grid reference of the next destination.

6 **MAKE IT CLEAR UNDER WHAT CONDITIONS, IF ANY, COLLECTING WILL BE ALLOWED.**

7 WHEN A PARTY SPLITS UP TO EXPLORE AN AREA :– or in case groups of individuals drift off on their own, ensure that a time back at the cars has been agreed.

8 TRY AND VARY AN EXCURSION :– eg. a visit to see a good fern collection makes a break from hunting.

9 PASS ON IDEAS FOR FUTURE MEETINGS TO THE MEETINGS COMMITTEE.

10 VOLUNTEER TO LEAD A MEETING NEXT YEAR!

BIRTHS

We are happy to make the following announcements –

To **Clifford and Judith Jones** – a daughter, *Daphne Corinne,* on 20 January 1979.
Dick and Angela Rush – a son, *Max Arthur,* on 24 December 1978.
Angela tells me that by a remarkable co-incidence, through no "arranging" on the part of anyone, she, her mother and her son all share the same Christmas Eve birthday.

OBITUARIES

We announce with regret the following deaths –

Mrs Mary G R Adams of Miami in Florida, USA, died in the spring of this year. She joined the Society in 1977.

F G Lander of Coventry died this autumn. He joined the Society only this year.

W A Smith of Aberdeen in Scotland, died in the spring of this year. He joined the Society in 1970.

Theo A Dyer of Alrewas in Staffordshire, died on 24 April this year. A member since 1955 he was a regular attender with his wife at meetings for many years. He was a very keen collector and grower of hardy ferns and amassed a very comprehensive collection which he donated to Oxford Botanic Garden last year. He had very strong opinions about the shift in content of our *Gazette* from horticulture to botany and resigned from membership in protest several years ago. However, he still kept in touch with me. We had a mutual respect and regard for each other and the *Newsletter* and its successor, the *Bulletin,* still came his way. It was a great pleasure to welcome him back into membership a year before his death, which came after many years of ill health.

We extend our deepest sympathy to his widow.

J W DYCE

MEETINGS PROGRAMME 1980

Meetings Secretary	A J Worland, 102 Queens Close, Harston, Cambs. CB2 5QN.
Meetings Committee	A R Busby, J A Crabbe, J W Dyce, M H Rickard, J R Woodhams.
Saturday 16 February	Indoor Meeting at the British Museum (Natural History), Cromwell Road, London SW7 5BD at 2.00 pm.
Saturday 16 February	Annual General Meeting to be held at the British Museum (Natural History), Cromwell Road, London SW7 5BD at 2.15 pm.
Saturday 17 May	Visit to the Fern Houses and outside fern borders at Kew Botanic Gardens. Meet outside Fern Houses at 2.30 pm.
Friday/Sunday 13/15 June	Weekend Meeting at Abercraf in South Wales. **Leader:** Peter Gates **Centre:** The Abercrave Inn, Abercraf, Swansea.
Friday/Sunday 27/29 June	Weekend Meeting in the Brendon Hills, Somerset. **Leader:** Jimmy Dyce **Centre:** Egremont Hotel, Williton, Somerset.
Saturday 5 July	Visit to the RHS Gardens at Wisley, Surrey. Meet at the main entrance at 2.30 pm.
Friday/Sunday 11/13 July	Weekend Meeting at Chapel-en-le-Frith, Derbyshire. **Leader:** Nick Hards **Centre:** Kings Arms, Market Place, Chapel-en-le-Frith.
Saturday 26 July	Visit to Wakehurst Place Gardens in Sussex. Meet at the main entrance at 11.00 am. **Leader:** Peter Edwards
Wednesday/Wed. 6/13 August	Field Course on "British Ferns" at Slapton Field Studies Centre in South Devon.
Sunday 10 August	Day Meeting at Aldham, near Colchester, Essex. **Leader:** Vivien Green
Thursday/Saturday 21/23 August	Southport Flower Show. Many fern classes. Visit the Society's Stand in the Societies' Tent.
Saturday/Saturday 30 August/6 Sept.	Week Meeting in the Lake District. **Leader:** Robert Sykes **Centre:** Not yet decided – apply to Leader.
Friday/Sunday 26/28 September	Joint Weekend Meeting with the BSBI at Brathay Field Centre, Ambleside, Cumbria.
Saturday 15 November	Indoor Meeting in the Wood Museum at Kew Botanic Gardens at 2.00 pm.

REGIONAL DAY MEETINGS

Suitable dates will be arranged by direct personal contact with Organisers –

South-west England: Christopher and Mary Potts, 4 Kennel Lane, Webbington, near Axbridge, Somerset. Tel: 093 472 545.

West Midlands: A R Busby, 42 Lewisham Road, Smethwick, Warley, West Midlands. Tel: 021 558 4481.

North-west England: Nigel Hall, 3 Sydney Road, Bramhall, Stockport, Cheshire. Tel: 061 440 8986.

Members who would like to receive their Regional Meetings programme should apply to the Organiser, enclosing a stamped addressed envelope.

MEMBERSHIP LIST

HONORARY MEMBERS

BROOKFIELD Noel, 102 Stamford Road, Birkdale, Southport, Merseyside.
BRUTY H J, BEM AH, 23 Dagmar Road, Kingston-upon-Thames, Surrey.
DYCE James W, FLS, Hilltop, 46 Sedley Rise, Loughton, Essex IG10 1LT.
HOLTTUM Dr R E, MA, ScD, VMH, FLS, 50 Gloucester Court, Kew Road, Richmond, Surrey.
JACKSON Fred, Knotts View, Stonethwaite, Borrowdale, Keswick, Cumberland.
KAYE Reginald, Waithman Nurseries, Silverdale, Carnforth, Lancs.
MANTON Prof Irene, BA, ScD, PhD, FRS, FLS, 15 Harrowby Crescent, West Park, Leeds 6, Yorks.
REICHSTEIN Professor Dr T, Institut fur Organische Chemie, 19 St Johanns-Ring, CH-4056 Basel,
Switzerland.

FULL MEMBERS AND SUBSCRIBERS

AARHUS UNIVERSITY, Botanisk Institut, Nordlandsvej 68, DK-8240 Risskov, Denmark.
ACOCK Patrick J, 13 Star Lane, St Mary Cray, Kent BR5 3LJ.
ADAMEK Gaston, Flurstrasse 25, 3014 Bern, Switzerland.
ADAMS A Moysey, Hill Farm House, Upper Swainswick, Nr Bath, Avon.
ADDINGTON Peter, Stream Cottage, Churchwood, Fittleworth, Pulborough, West Sussex RH20 1HP.
ADELAIDE BOTANIC GARDEN, North Terrace, Adelaide, South Australia 5000.
ADELAIDE UNIVERSITY, Barr Smith Library, Adelaide, South Australia 5001.
ADLAM Kenneth W H, Glenhill Cottage, The Glen,Walmer, Kent CT14 7NN.
AKEROYD J R, The Elms, Weston Green, Thames Ditton, Surrey.
AKRON UNIVERSITY, Akron, Ohio 44304, USA.
AMSTERDAM UNIVERSITY, Universiteits-bibliotheek, D en N 250, Singel 425, Amsterdam, Holland.
ANDREW Henry, 19 Burbage Road, Dulwich, London SE24 9HJ.
ANDREW S M, 3 Walnut Lane, Hartford, Northwich, Cheshire CW8 1QN.
ANDREWS Bruce, 85 Bywong Street, Toowong 4066, Queensland, Australia.
ARMSTRONG D, 1850 W 33rd Avenue, Vancouver, B C VCM IBS., Canada.
ARRAN NATURE CENTRE, Cladach, Brodick, Isle of Arran.
AUSTICK'S UNIVERSITY BOOKSHOP, 21 Blenheim Terrace, Woodhouse Lane, Leeds, Yorks LS2 9HJ.
AUSTWICK Eric, 4 Rippingham Road, Withington, Manchester 20.
BAINS Kenneth, 21 Uvedale Road, Enfield, Middlesex.
BALL R B, 19 Awakino Road, Te Kuiti, New Zealand.
BANNISTER W David, 27 Lime Grove, Royston, Herts.
BARKER Miss J, 115 Rutland Street, Derby.
BARKER Miss Marian A, 9 South Drive, Irby, Wirral, Merseyside L61 2XL.
BARNES Peter G, c/o Royal Horticultural Society Gardens, Wisley, Ripley, Woking, Surrey.
BARNETT John, 1 Mill Cottages, Skyreholme, Appletreewick, Yorks.
BATES Mrs Phyllis, 554 Arden Drive, Encinitas, California 92024, USA.
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BATTEN Dr David J, Dept of Geology, Marischal College, Aberdeen University, Aberdeen AB9 1AS.
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BEITEL Joseph M, Dept of Botany, University of Michigan, Ann Arbor, Michigan 48109, USA.
BELLOTTE W, Chaussee de Liege 70, B 4140 Amay, Belgium.
BENL Dr Gerhard, FLS, Botanische Staatssammlung Munchen, Menzinger Strasse 67,
8000 Munchen 19, Germany.
BENNELL Mrs Frances M, c/o Royal Botanic Garden, Inverleith Row, Edinburgh EH3 5LR.
BENNERT Dr H Wilfried, Arbeitsgruppe Spezielle Botanik, Abteilung fur Biologie, Ruhr-Universitat Bochu
Universitatsstrasse 150, D-4630 Bochum-Querenburg, West Germany.
BENNETT PTY. LTD James, Booksellers, 4 Collaroy Street, Collaroy, New South Wales 2097, Australia.
BEST Raymond, 15 Orana Road, Kenthurst 2154, New South Wales, Australia.
BHARDWAJA Dr T N, Dept of Botany, Government College, Ajmer 305001, Rajathan, India.
BIOSYSTEMATICS RESEARCH INST., Library Plant Research, Res Br Agric Canada No 49, Ottawa,
Canada KIA 0C6.
BIRKS Dr H J B, Botany School, Downing Street, Cambridge CB2 3EA.
BIRMINGHAM UNIVERSITY, The Main Library, Periodicals Dept, Edgbaston, Birmingham 15.
BISHOP Mrs Joy, Wheelspin, 83 Macdonald Road, Lightwater, Surrey GU15 5XZ.
BLOOMFIELD J V, Manton House, Marlborough, Wilts.
BOBROV A E, Botanical Institute of the Academy of Sciences of the USSR, Prof Popov Street 2,
Leningrad 22, USSR.
BOLTON Robert B, Craig Holme, Birdbrook, Halstead, Essex.
BONNET Professor A L M, Faculte des Sciences, Place Eugene Bataillon, 34060 Montpellier, France.
BOTANIC GARDEN OF THE FREE UNIVERSITY, Van der Boechorststraat 8,
Amsterdam-Buitenveldert, Holland.
BOTANICAL LIBRARY, Ö Vallgatan 18, Lund, Sweden.
BOTANICAL SURVEY OF INDIA, Indian Botanic Garden, P O Botanic Garden, Howrah 3, India.
BOTANISCHER GARTEN UND MUSEUM, Konigin-Luise-Strasse 6-8, 1 Berlin 33 (Dahlem).

BOTANISK CENTRALBIBLIOTEK, Gothersgade 130, DK-1123 Copenhagen K, Denmark.
BOUHARMONT Professor J, Universite Catholique de Louvain, Laboratoire de Cytogenetique,
Place de la Croix-du-Sud 4, B-1348 Louvain-la-Neuve, Belgium.
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BRAITHWAITE Dr A F, 31 Warrender Close, Bramcote Hills, Beeston, Nottingham.
BRIAN Dr H M, 2712 Hill Street, Alexandria, La 71301, USA.
BRIGHTMAN Frank H, BSc, c/o British Museum (Natural History), Cromwell Road, London, SW7 5BD.
BRITISH COLUMBIA UNIVERSITY, Woodward Library - Serials, Vancouver 8, British Columbia, Canada.
BRITISH LIBRARY, Lending Division, Accessions Dept, Boston Spa, Wetherby, Yorkshire LS23 7BQ.
BRITISH MUSEUM (NATURAL HISTORY), Dept, of Botany, Cromwell Road, London SW7 5BD.
BRITTON Dr Donald M, Dept of Botany and Genetics, University of Guelph, Guelph, Ontario, Canada,
N16 2W1.
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BROWNSEY P J, National Museum, Private Bag, Wellington, New Zealand.
BRUCE Professor James G, Botany Dept, University of Georgia, Athens, Georgia 30602, USA.
BUCK William R, University of Michigan Herbarium, North University Building, Ann Arbor,
Michigan 48109, USA.
BURMAN W F, 97 Aylestone Drive, Leicester LE2 8SB.
BURNETT D, P O Box 135, Neutral Bay Junction, New South Wales 2089, Australia.
BUSBY A R (Matt), 42 Lewisham Road, Smethwick, Warley, West Midlands.
BUSHEN Mrs D J, Halsway Nurseries, Crowcombe, Taunton, Somerset TA4 4BB.
BUTTERWORTH Miss C, 30 Woodbridge Lawn, Queenswood Drive, Leeds, West Yorks. LS6 3LN.
CALIFORNIA UNIVERSITY, Current Serials, General Library, Berkeley, California 94720, USA.
CALIFORNIA UNIVERSITY, Biomedical Library, The Center for the Health Sciences, Los Angeles,
California 90024, USA.
CAMBRIDGE UNIVERSITY BOTANIC GARDENS, Cambridge CB2 1JF.
CAPE COAST UNIVERSITY COLLEGE, Private Post Bag, Cape Coast, Ghana, West Africa.
CASTELLAN Mrs Marjorie L, The Lane Cottage, Wootton, Ellastone, Nr Ashbourne, Derbyshire.
CASTLE-SMITH Mrs Jean M, Boat of Murthly Cottage, By Dunkeld, Perthshire.
CENTER FOR RESEARCH LIBRARY, 5721 Cottage Grove Avenue, Chicago 37, Illinois, USA.
CHAPMAN Donald I, Larkmead, 29 The Street, Barton Mills, Bury St Edmonds, Suffolk.
CHIBA UNIVERSITY LIBRARY, Chiba Daigaku Fuzoku, Toshokan, 1-33 Yayoi-cho, Chiba-shi,
260 Japan (Kin).
CHICKEN Eric, Corner House, Scarborough Road, Driffield, N Humberside YO25 7EH.
CHINNOCK R J, State Herbarium of South Australia, Botanic Garden, North Terrace, Adelaide,
S A 5000, Australia.
CHUEY Dr Carl F, Dept of Biological Science, Youngstown State University, Youngstown,
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CLARK Miss Gunilla, The Anchorage, Iken, Woodbridge, Suffolk.
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CLAY Glynne, Lower House Farm, Nantyderry, Abergavenny, Gwent NP7 9DP.
CLOUGH Peter, Rowesfield, Tresco, Isles of Scilly, Cornwall TR24 0QQ.
COKE Lt Col Philip G, Robin Hill, Stinchcombe, Dursley, Gloucestershire.
COLLINS Mrs Margaret W, 73 Hazelwood Road, Acocks Green, Birmingham 27.
COLLINSON Dr Margaret E, PhD, BSc, Palaeontology Dept, British Museum (Natural History),
Cromwell Road, London SW7 5BD.
COLORADO UNIVERSITY LIBRARIES, Acquisitions Dept, Boulder, Colorado 80302, USA.
CONNECTICUT UNIVERSITY, The Library, Serials Dept, Storrs, Connecticut 06268, USA.
CONSERVATOIRE BOTANIQUE, 192 Rue de Lausanne, Geneva, Switzerland.
COOPER John, Dept of Palaeontology, British Museum (Natural History), Cromwell Road,
London, SW7 5BD.
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THE BRITISH PTERIDOLOGICAL SOCIETY

BULLETIN

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VOLUME TWO NUMBER TWO

1980

THE BRITISH PTERIDOLOGICAL SOCIETY

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The *Fern Gazette* and the *Bulletin* are the journals of the British Pteridological Society, published annually. The Gazette publishes matter chiefly of specialist interest on international pteridology, the Bulletin topics of more general appeal.

The BRITISH PTERIDOLOGICAL SOCIETY was founded in 1891 and today continues as a focus for fern enthusiasts. It provides a wide range of information about ferns through the medium of its publications and available literature. It also organises formal talks, informal discussions, field meetings, garden visits, searches for rare fern books, plant exchanges and a spore-exchange scheme. The Society has a wide membership which includes gardeners, nurserymen and botanists, both amateur and professional, in Britain and overseas. Articles for the Society's publications are received from, and reflect the interests of, Society members.

Membership is open to all interested in ferns and fern-allies, worldwide. Subscription rates (due on 1st January each year) are: Full Personal Members £7; Personal members not receiving the Fern Gazette £5; Student Members (full-time students under the age of 25) £5; Subscribing Institutions £8. Applications for membership should be sent to the Membership Secretary (address above), from whom further details can be obtained. (Remittances made in currencies other than Sterling are £0.50 extra, to cover bank conversion charges.)

Back numbers of the *Gazette* and *Bulletin* are available for purchase from the President (address above), from whom further details can be obtained.

THE

BULLETIN

OF THE

BRITISH PTERIDOLOGICAL SOCIETY

Vol 2 1980 No 2

EDITORIAL

I would like to acknowledge the large amount of co-operation I have received from members of the Society while compiling this edition of the *Bulletin.* To all those who have contributed articles I am particularly grateful, but my main thanks must go to our President, Jimmy Dyce, who has single-handed again written almost half of the total copy. I said last year that dependance on Jimmy cannot go on for ever, but perhaps it can!

I am conscious that almost half the copies of the *Bulletin* are sent overseas, while the content falls short of representing that part of our membership. Fortunately contributions and comments have been received from one or two foreign sources but I would like to see more. For example we allocate a lot of space to our UK field trips, but we rarely hear of foreign excursions; similarly we hear about variation in British ferns while variation in other parts of the world is rarely discussed. Jimmy Dyce saw some first-class varieties in North America this year but what other treasures exist there or elsewhere? The possibilities for notes and articles are endless and I hope we can look forward to seeing more of our overseas members joining our growing UK nucleus of contributors to the *Bulletin.*

One last request: it is hoped that a frontispiece plus a complementary article or note will become a feature of the *Bulletin* as it was of the old *Gazettes.* Would authors therefore please bear this in mind and submit potentially suitable black and white photographs plus negatives along with their articles wherever possible. These photographs would in due course be returned.

PRESIDENTIAL NOTES

With the publication of the *Bulletin* Vol. 2 No. 1 last year, members will have noted that we have made a fortunate choice in Martin Rickard as our new Editor. Naturally, in his first year, Martin did not diverge much from the former format of the journal, but as he becomes established in the editorial seat he will be introducing more of his own ideas and, knowing how responsibly he regards the job, I know they will be sound ideas, and I am more than happy to have handed over my "baby" into such caring hands. From what I have seen, from my vantage point as Assistant Editor, of the fare to be dished up in this issue I am sure that members will find it enjoyable and interesting reading.

Now that I have handed over the responsibility for running the Society I am more of a free agent with fewer ties to keep me at home, so this year I took full advantage of the fact and celebrated my new-found freedom by going over to the U.S.A. for a long holiday — a fern one, of course! During the nine weeks I was there as the guest of our Seattle member Mrs Judith Jones and her husband, I was privileged to see much of the western side of that vast country, all the way down to its southern border with Mexico in Arizona and penetrating up into mid British Columbia in Canada. I have seen many new ferns and other plants of great interest, but most of all I was very happy to meet and get to know many of our American members who welcomed me warmly and made my visit a very memorable one. I had other invitations to visit other members in far removed places in the mid and eastern parts of the country, invitations which I would have dearly loved to accept but for three obstacles – time, distance and money! I have brought back many happy memories and, no doubt, some of them will be spilled out into the pages of the *Bulletin* in due course.

By the time this *Bulletin* has been published and distributed another year will have almost gone – how quickly they pass for me nowadays! – and I would like to take this opportunity to wish all of you the time-honoured greeting – A Merry Christmas and a Happy New Year.

SECRETARIAL NOTES

MEETINGS – Meetings Cards for 1981 are enclosed with this Bulletin to all inland members. Overseas members, visiting Britain, can obtain them on application to the Meetings Secretary.

PUBLICATIONS BY AIRMAIL. Our journals can be sent by airmail to overseas members, provided they advise the Membership Secretary and pay an additional subscription to cover airmail postage. Please note that with a further increase in postal rates during February, 1980, the additional amount now required is £2.50 for full members and £1.50 for those receiving only the Bulletin. The amounts should be sent with your annual dues.

READING CIRCLE. The American Fern Journal, a quarterly containing much information for those seriously interested in ferns, is circulated to Reading Circle members. To join, apply to Mrs Mary Potts, 4 Kennel Lane, Webbington, near Axbridge, Somerset.

SCOTTISH REGIONAL MEETINGS FOR 1981. Members in Scotland who would like to participate in Scottish Regional Meetings are invited to write to Michael M Scott, 24 Gardner's Crescent, Edinburgh EH38DE. Do not wait until the spring, but get in touch NOW so that he and Dr Chris Page at Edinburgh Botanic Garden can get some idea of the extent of members' interest.

Members in other areas who would like to try and arrange their own local meetings are invited to write to the Secretary for advice or ideas on how to organise suitable programmes.

COMMITTEE VACANCIES. In accordance with paragraph 3, section 3 of the Society's constitution two vacancies in Committee will occur due to the retirement of the two longest serving Committee members.

Nominations are invited from members of the Society to fill the two vacancies at the Annual General Meeting in February 1981.

The names of the nominees, proposer and seconder together with a letter from the nominee indicating willingness to serve should reach the Secretary by 1st of February 1981.

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40.00	Book Sales (Profits)	85.00	
3.75	Sundries	12.50	
			£ 270.00
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			146.87
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1300.00	Econoprint a/c Gazette Vol 12 Part 1	1310.00
	Index to Vol 11	369.00
204.18	Printing and Stationery	222.82
538.78	Administrative Expenses and Postage	510.53
26.10	Subscriptions to Societies	24.60
5.00	Indoor meeting costs	16.00
		£2961.95
563.40	Excess of income over expenditure	140.95 DR
1029.37	Balance carried forward from December 1978	1592.77
	Balance carried forward in Ordinary Account	£1451.82

PUBLICATIONS ACCOUNT

Balance carried forward from 1978	1000.00
Printing of excess Gazettes for reserve stock	403.76
Balance carried forward	£ 596.24

GREENFIELD FUND

Balance carried forward from 1978	1193.01
Interest	78.68
Balance carried forward	£1271.69

TREASURER'S REPORT

As predicted the Society's expenditure exceeded its income during 1979. This was largely due to the printing of the Index to volume 11 of the *Gazette* which was distributed free to members. The publication account was also depleted by the printing of extra copies of the *Gazette* for future sale. The cost of printing the Society's publications will undoubtedly rise in 1980, which together with the increased administrative costs will result in a further loss. To counteract these increases the Society's subscription rates have been raised to levels sufficient to accrue new reserves.

Once again there were no applications for grants from the Greenfield Fund.

SUBSCRIPTIONS — a reminder

All members should have received details of the new subscription rates agreed at the Extraordinary General Meeting at Kew on the 17th of May 1980. The new rates become operative on the 1st of January 1981 and are as follows:—

Full Personal Member	£7
Personal Member not receiving the *Fern Gazette*	£5
Student Member (full-time students under the age of twenty-five)	£5
Subscribing Institution	£8

Subscriptions should be paid direct to Philip Coke, the Membership Secretary, and *not* Barry Thomas the Treasurer.

THE ANNUAL GENERAL MEETING — 16 FEBRUARY 1980

The 77th AGM of the Society was held at the British Museum (Natural History) in London at 2.30 pm and was attended by 51 members. The President, J W Dyce, was in the Chair.

The Secretary reported briefly on the events of the year which was a good one with meetings well attended and membership numbers up. There were four deaths and 14 resignations, but we gained 81 new members. There were major changes — a new President, a new Secretary, a new Bulletin Editor, and a new appointment of Nigel Hall as Archivist. He reminded the Meeting that the Centenary of the Society was approaching — we would be 100 years old in 1991. An archivist would have a big part to play in the preparations for the celebration of the event.

The Treasurer reported that our income did not meet our expenditure during the year. This was due to the increased costs of publishing our journals and in the running of the Society. He proposed that we hold a short Extraordinary General Meeting during the Kew meeting in May to approve new subscription rates to come into force on 1 January 1981. This was agreed to.

The Gazette Editor reported that our new London printers had made an efficient and quick job of the 1979 Gazette which enabled us to get back to our spring publication date. Volume 12 part 2 was well in hand and would be out in the late spring.

Our new Bulletin Editor reported on his first issue which was published on time in early December. He appealed for more contributions and would welcome constructive criticism and suggestions.

The retiring Committee members were P G Coke and F J Tingey who were thanked for their services while in office. Mrs Gwladys Tonge and J K Cramp were elected to replace them. A J Worland was due to retire as Meetings Secretary but agreed to serve for a further year.

The Treasurer reported that he had at last been able to get a book-binder to complete our remaining stock of *Hardy Ferns* at a reasonable cost. The Meetings Programme for 1980 was discussed and special mention was made of the joint weekend meeting with the Botanical Society of the British Isles to be held in September at Brathay Hall near Ambleside in Cumbria. The work of the Regional Meetings organisers was mentioned very favourably. Another area was coming into the fold — Edinburgh, and Michael Scott was hoping to organise meetings in this area.

As usual, the AGM was followed by an indoor conversazione with talks and exhibits.

MEETINGS 1980

Reports collated by J W Dyce

Usually I am able to report personally on most, if not all, our meetings, but this year I was over in the U.S.A. for a good part of the summer so my job mainly is to gather together the various reports which have reached me from the leaders or other members present at the meetings.

INDOOR MEETINGS

The Spring Indoor Meeting was held on 16 February in conjuction with the Annual General Meeting at the British Museum (Natural History). Over 50 members attended. Chris Fraser Jenkins gave us a most interesting talk on his recent ferning expedition to the Himalayas in Sikkim, illustrated by many fine slides of ferns and the magnificent scenery. This fascinating part of the world has much to offer the fern botanist, ranging from tropical valleys cut deep into the temperate high-lying ground gradually rising to the snows and over-shadowed by the mighty massif of Kanchenjunga. Chris's main fern interest is in Dryopteris, and he had a large exhibit of fronds of the various species and hybrids. There was a good array of fern books for sale and John Cooper is to be complimented on his fine display of platyceriums. We have to thank a bevy of young lady members, supervised by Mary Gibby, for providing a delightful buffet tea which was much enjoyed.

The Autumn Indoor Meeting was held on the 15 November in the Wood Museum at Kew Botanic Gardens and was attended by 35 members and friends. After a half hour of informal chat Nigel Hall gave a talk on "The Stansfields and other fern nurserymen". The amount of research, very time-consuming research, done on his subject by Nigel was impressive and he was able to build up a most interesting picture of the Stansfield family which at present is the main object of his work in this field — he also spoke briefly on the Birkenheads and their equally famous nursery. The talk was accompanied by many slides and Nigel had a large exhibit of various documents illustrating the subject. Nigel is the Society's archivist and we have indeed been most fortunate in finding such an enthusiast to fill this post.

Next, Professor Holttum showed slides, taken during the recent botanical meeting in the south of Spain, of scenery and ferns with appropriate remarks and John Woodhams followed with a similar covering of his recent visit to Malaysia. A most enjoyable and interesting afternoon was completed by the provision of tea, coffee and biscuits, donated by our charming bevy of "tea girls".

DAY MEETINGS

Kew Gardens – 17 May. The afternoon's programme began with an Extraordinary General Meeting to consider the Treasurer's proposed increase in the subscription rates for 1981. A C Jermy took the Chair, welcomed the 28 members present, and apologised for the short notice due to distribution problems with the Gazette. He then introduced the Treasurer Dr B A Thomas who explained the need for an increase, largely due to escalating costs the Society is obliged to meet in publishing the Gazette and Bulletin. This meeting was brief and the vote to accept the Treasurer's proposed increase was unanimous.

At this point, Mrs Joan Woodhams kindly provided tea and biscuits and the meeting was swelled by the arrival of a further six or seven members.

John Woodhams then kindly conducted the members around the fern section's glasshouse nursery and quarantine area where he pointed out a number of new exotic arrivals and ferns undergoing various insecticide trial programmes.

A special vote of thanks is due to John Woodhams for organizing comfortable surroundings for the meeting and to his wife, Joan, for providing the refreshments.

A R Busby

Royal Horticultural Society Gardens, Wisley, Surrey – 5 July. It had been planned that the leader of this meeting would be Jimmy Dyce, our President. However, as he was away in the United States at the time a substitute had to be selected. Fortunately, one of our number, Alf Hoare, knows the Gardens well and he willingly took on the task of leading the party of 16 members and friends to the ferns.

In hot sunny weather Alf took us past several magnificent osmundas before reaching the main fern collection. This is planted in the wild garden and consists of perhaps 100 or so different varieties and species. Most major types of variation are included and the species collection was quite rich, particularly the North American ferns. In the nearby rock garden ferns are also a striking feature; however, the majority here are common species together with some minor variants. From the rock garden the party moved on to the glasshouses before finishing an enjoyable afternoon with refreshments in the Garden's restaurant.

Martin Rickard

Wakehurst Place Gardens, Ardingly, Haywards Heath, Sussex – 26 July. Despite a dark wet thundery period at the appointed meeting time, seven members and friends attended with Peter Edwards. As the grounds of Wakehurst Place are large and rambling, a few fairly small areas were concentrated on, between Bethlehem Gardens and Tilgate Wood. The latter is out of bounds to the public but Mr Schilling, Deputy Curator of this whole 'Kew in the country' estate kindly gave us permission to enter the area.

Seventeen of the 21 taxa of indigenous Wakehurst pteridophytes were seen, including *Oreopteris limbosperma, Equisetum fluviatile, E. palustre* and *E. arvense* at Westwood Lake. *Dryopteris X tavelii* was frequent in Tilgate Wood, in places vigorous, with *D. dilatata, D. filix-mas, D. pseudomas* and *Athyrium filix-femina.* These are co-dominant in an area of about half an acre. All *D. X tavelii* seen had darkened pinnae-bases, and many had half-inrolled and half-extended indusia. The record of *D. X tavelii* from the south of the estate (seen before the meeting) is new for grid square 51/32. About 20% of *A. filix-femina* had red stipes and rachises. On the rock walk in Bethelem Gardens several hundred *D. aemula* were found, on steep loose sandstone banks with bryophyte and algae cover. Sporelings of *D. aemula* and *D. dilatata* were common. The sporophytes of *D. aemula* had fronds 20-30% larger in area than in 1979, perhaps due to the season's rain? This species was also found in Tilgate Wood, with *Polypodium interjectum*. *Polystichum aculeatum* and *P. setiferum* were seen in Westwood.

The grounds of Wakehurst Place also have a selection of planted native and exotic ferns in the formal part, including fine *Osmunda regalis.* (This species is occasional on shady wet banks within a mile of Wakehurst). Undoubtedly other pteridophytes lurk in this splendid estate, and it is intended to work over them in some detail. A fuller article will appear later.

Peter Edwards

Aldham, near Colchester, Essex — 10 August. A disappointingly small number of nine members turned up for this meeting at Vivien Green's home, Honeysuckle Cottage, Halstead Road, Aldham. The morning was spent examining Vivien's fast growing collection of ferns, a large proportion of which she has raised from spores. Many varieties were most unusual, particularly some of the divisilobe polystichums. One plant which generated a lot of comment was a polystichum resembling *P. setiferum* except for the sporing parts of the fronds which were abruptly constricted — rather like *P. acrostichoides.* This plant is almost certainly sterile as no spores could be detected despite abundant production of sporangia. It therefore seems possible that it is of hybrid origin with the two above-mentioned species as its most likely parents. Whatever the plant eventually proves to be, it certainly is a handsome highlight to Vivien's fascinating garden. The morning closed with a plant exchange at which a large number of rather desirable ferns changed hands.

After lunch the party moved on to Fingringhoe Wick Nature Reserve — the headquarters of the Essex Naturalists Trust. Here, in hot sunny weather, we were shown a surprisingly large number of fern species by the warden, Laurie Forsyth. The most interesting pteridophytes in the Reserve were *Osmunda regalis, Lycopodium clavatum* and *Blechnum spicant* — all very rare in the Reserve but even rarer in Essex as a whole. Other distractions were frequent throughout the Reserve, including butterflies, birds, flowering plants and, not least, the information centre. This provides a wide range of on-site facilities for the naturalist in most pleasant surroundings. All in all, this day out in Essex was extremely enjoyable, and Vivien and Laurie are to be congratulated for providing so much varied fern fare in Essex.

Martin Rickard

REGIONAL DAY MEETINGS

We have added a third group to our regional meetings this year — the North-west England group. BUT, if you read Nigel Hall's report, you will note that the group may be very short lived. Can I add my voice to Nigel's — members are pretty "thick on the ground" in this "catchment" area and the efforts of Nigel and his helpers deserve a much better response. I hope he has a better turn-out next year — IF he plans a programme.

Our other two regional organisers, Mary Potts and Matt Busby, have again successfully provided their annual quota of interest to the Society's activities this year, and the reports from all three regions are appended.

West Midlands. The year's activities began with my usual fern display at the 'Welcome to Spring' Flower Show held on the 19/20th April at the Notcutts Garden Centre at Monkspath. Unfortunately, that particular weekend proved to be windy, and on the eve of the show a large part of the tenting collapsed, causing a great deal of damage to the floral arrangements and a number of my ferns and clay pots.

Mrs D Watson, the Show Secretary, was most distressed and it was thought that the show might have to be cancelled; however, everyone worked very hard and it opened on time with little apparent damage. It was most encouraging to be visited by five members during the show – my thanks to them, and especially to Ray Smith who spent time with me on the Society's stand. I would like to extend special thanks to Mrs D Watson and her show committee for allowing me to stage the ferns on behalf of the Society and for their kindness in sending me a cheque for £5 as compensation for the damage sustained at the show.

On Sunday 10th August, Ray and Brenda Smith kindly invited local members to visit their garden. Recent alterations included a long mixed border of shrubs, herbaceous plants and ferns. Brenda's recent passion for alpines was in evidence with a raised scree border close to the house. Because of the rather wet summer few of the flowering plants were at their best, with many choice items awaiting a little sunshine to bring them to perfection. However, the ferns were in their best finery for our visit. Several members complimented Ray on his raised fern border which has now been established for a few years. In this border which is situated in the garden's most shaded corner, numerous genera were displayed in a relatively small area – an arrangement which I can see being copied in other members' gardens in future years. Thirteen members and friends were present at Ray and Brenda's Open Day and may I express our warm thanks to them for their hospitality and kindness.

On the evening of Thursday 6th November, eighteen members gathered at the University of Aston, Birmingham for a Wine and Cheese Party, with the visual entertainment provided by the display of members'fern colour-slides. Nearly 100 slides were shown and they proved to be of a very high standard. Anyone anxious to illustrate a book on ferns with colour pictures will find a wealth of talented photographers here in the West Midlands. Needless to say, the Secretary exhibited none. Later in the evening, Dr George Hearn of Moseley, Birmingham outlined his recent discovery of the J. E. Mapplebeck collection of British fern varieties in Moseley. Dr Hearn displayed several pressed fronds he has obtained from the plants, the most notable of which was a frond from the original *Dryopteris pseudo-mas, cv Polydactyla Mapplebeck* as illustrated on page 304-305 of C T Druery's *British Ferns and their Varieties.* It is hoped that Dr Hearn will write about his finds in more detail in next year's Bulletin. The evening closed with a small book-sale and the exchange of many anecdotes. Thanks are due to Valerie and Alan Ogden and Margaret Busby for helping to organize an evening the members made so enjoyable.

Arrangements for next year's local meetings are already in hand but Midland members with ideas for venues are invited to write to me so that an interesting programme of visits is assured.

A. R. Busby

North-west England. This group made its formal appearance this year. A circular was sent to many North-west members listing a short programme. Only a few members replied. It is somewhat surprising that so many members of a society cannot make the effort to tick a form and put it in the *enclosed STAMPED ADDRESSED envelope.*

The first meeting was at Tatton Park which houses a beautiful example of a Victorian fern house. There are several species of tree ferns and a forest of *Woodwardia radicans.* In addition the grounds contain a number of ferns including magnificent eight foot high clumps of *Osmunda regalis.* Five members attended this meeting and returned to Nigel Hall's for refreshment.

The second meeting was in Silverdale. Ten members and friends attended and the weather, unusually for this year, rewarded their attendance by staying fine. The morning was spent investigating the Silverdale limestone slopes and after a good pub lunch Reginald Kaye's nursery was visited.

The final meeting was held at the University of Manchester experimental grounds where there is a small fern house as well as many ferns growing outdoors. Six members and friends attended this meeting and returned to Nick Hard's to view his ferns and take refreshment.

On the whole, the response was not good and both the organisers will be thinking hard about whether it is worth getting a programme together for 1981.

Nigel Hall

South-west England. Two meetings were held in this area during the year; the first, at the end of July is becoming an annual event – *Philip Coke's Fern Day.* The fame of Philip's fern collection and Mary's hospitality drew twenty members (and offspring) from far afield to spend an enjoyable and informative day on the 26 July. Philip has re-organised some of his fern beds and his hartstongues are now grouped together; the close planting of one species aids comparison of particular plants, though some of the spectacular varieties lose impact if planted with less aesthetically pleasing neighbours. The display – under cover – of adiantums was superb and some sporelings of the "misty" and variegated maidenhairs looked promising. New and seasoned members benefited from the exchange of plants and information. We all left with the pleasure of seeing a really good collection of hardy ferns well grown, along with the satisfaction of having been hospitably entertained. Again, thank you to Mary Coke for the splendid lunch and convivial welcome.

The second meeting was held on 17 August at *Joan Loraine's home in Porlock, Somerset.* We had last visited Joan's garden four years ago in the spring and were able to appreciate the changes in season and plan. The marvellous subtleties provided by setting ferns in native woodland were apparent as we were guided along brushed, moss-encrusted paths, passing large stands of *Blechnum tabulare* and *Dicksonia antarctica. Dryopteris aemula* and *D. carthusiana,* naturalised and growing in abundance, spread waves of graceful fronds under mature trees of sweet chestnut and holly; later additions of polypody in variety and *Asplenium scolopendrium* (not entirely happy in the lime-free soil) providing changes in texture and leaf form; small glades of geranium and hieracium giving glimpses of colour in an ocean of verdure.

I hope Joan will forgive the irreverence of extolling the virtues of a rhododendron garden in August, but the beautiful luxuriance of ferns can only be appraised apart from the flamboyant temptations overhead; yet the odd fuchsia bush was seen to magnificent advantage with such modest neighbours.

Joan provided us with an excellent lunch and tomes of ferny information, copious garden notes and even her personal weather reports! The seven members at the meeting left refreshed and enlightened.

Mary Potts

WEEKEND MEETINGS

Abercraf, South Wales — 13/15 June. This meeting which promised to be a good one, most unfortunately did not take place. The leader, Peter Gates, moved from the area and there was no one available to take his place.

The Brendon Hills, Somerset — 27/29 June. We met up on the morning of 28 June and there were present — Richard Unett (Leader), Mr and Mrs Alf Hoare, and Mr and Mrs Ray Smith with their daughter Melanie, all of whom were due to be there. They were joined by Lt Col Philip Coke and Mr Martin Rickard for the first day's outing.

We first drove to Roadwater (31/0338) and parked just beyond at the edge of Langridge Wood (31/0137). We searched the line of the stream (unnamed) running through the wood and explored several tracks leading off left and right. We found *Athyrium filix-femina, Asplenium scolopendrium, A. trichomanes, Blechnum spicant, Dryopteris aemula* (abundant on the banks of a small lane), *D. dilatata, D. filix-mas, D. pseudomas, Oreopteris limbosperma, Polypodium interjectum, P. vulgare* and *Polystichum setiferum.* There were some varieties of *A. scolopendrium,* crested and marginate, but no other varieties were noted. For lunch we went to Crowcombe (31/1436) and there explored the village with special reference to the walls. We found *A. adiantum-nigrum, A. ruta-muraria, A. scolopendrium, A. trichomanes, D. filix-mas, Equisetum arvense* (this was the only equisetum found during the weekend), *P. interjectum, P. vulgare* and *P. setiferum.* Our searches took in the lanes leading east out of the village. Next we went on to Holford (31/1541) as a hymenophyllum (Martin did not say which) was recorded for Alfoxton Glen. We searched for some time in the streams west of Holford and found *A. scolopendrium, A. trichomanes, A. filix-femina, B. spicant, D. dilatata, D. filix-mas, D. pseudomas, D. X tavelii* (identified by Martin Rickard), *P. interjectum, P. setiferum, Pteridium aquilinum* but there was no sign of a hymenophyllum. We then called on Mrs D J Bushen, a member of the Society who has a nursery at Halsway (near Halsway Manor 31/1238), who kindly gave us tea and cake. She had been hoping to join the party on Sunday but was unable to do so. We had a look over her nursery which is in the walled garden of the Manor.

On Sunday we set off for Slowley Wood (21/9938) and explored a small stream running north from the main stream. We found *A. scolopendrium, A. filix-femina, B. spicant, D. dilatata, D. filix-mas, D. pseudomas, P. interjectum* (and possibly *P. vulgare* ss) but we were not certain of this) and *P. aquilinum.* The line of the main stream, running parallel to the road, is largely in the open and the woods are of conifers, so we abandoned our plans to work up the stream and returned to the bridge over it at 31/004377. Here we found all the same species plus *P. setiferum.* Here again there were some crested forms of *P. scolopendrium,* but not such good ones as we had found the day before. Lastly, we tried Chargot Wood (21/9736). However, the stream running through the wood was very overgrown with brambles, blocked with fallen trees and was also exposed to the sunlight, so we explored the path running south and situated to the east of the stream. Here we found *A. scolopendrium, A. filix-femina, B. spicant, D. dilatata, D. filix-mas, D. pseudomas, O. limbosperma* and *P. aquilinum.*

One of the objects of the meeting was to check on variation in the polystichums, and this we singularly failed to note. We did not find a single *P. aculeatum* while *P. setiferum* was not numerous. Perhaps in the circumstances not much was to be expected. The area is not really an ideal one, for much of the woodland is coniferous with Forestry Commission plantations. Our greatest successes were outside the woods. The large patch of *D. aemula,* already referred to, was quite remarkable; one estimate was about 1000 plants and I would think that quite possible.

Richard Unett

Chapel-en-le-Frith, Derbyshire — 11/13 July. Altogether, 11 members attended this meeting, some for only part of the time including Howard Davies who unfortunately missed us on the Saturday. We began at Cave Dale (43/1484) near Castleton. At the foot, *Dryopteris filix-mas* was seen, and on the cliffs *Asplenium ruta-muraria, A. trichomanes* and *Cystopteris fragilis* were common. We also found a few plants of polypody, possibly *Polypodium interjectum.* Higher up the dale, on the north side, a few plants of *A. viride* were found. This was a good start to the meeting as *A. viride* is very rare in Derbyshire. After a convivial lunch in Hope we set off up Jaggers Clough (43/14-1587). This was a good strenuous walk to nearly 1900 feet but as the weather conditions were rather uncertain Martin Rickard and family elected to go to the show caves. On the acid gritstone *Oreopteris limbosperma, D. filix-mas, D. pseudomas, D. dilatata, Athyrium filix-femina, Blechnum spicant* and *Pteridium aquilinum* were large, abundant and luxuriant. A polypody was seen, possibly *P. vulgare.* The main interest here is the oak fern and the beech fern but the former is very rare. We found abundant large plants of *Phegopteris connectilis* but I was unable to locate the solitary plant of *Gymnocarpium dryopteris* I had previously found. A fine colony of *A. ceterach* was seen on the wall of the church yard in Edale where we stopped for lunch.

Meanwhile, Martin had his own fern hunt along the road near Chapel where we had noticed an abundance of large ferns. He found only a few species — *P. aquilinum, A. filix-femina, D. dilatata, D. filix-mas, D. pseudomas* and *B. spicant,* the last two very scarce. But he did find a large cristate plant, a sub-plumosum and a revolvens, all varieties of *A. filix-femina.*

On Sunday we began in Miller's Dale (43/14-1573) where *A. trichomanes, Polystichum aculeatum, P. interjectum, C. fragilis, D. filix-mas* and *Equisetum arvense* were all seen from the path. Those who ventured into the undergrowth also found *A. scolopendrium* and *D. dilatata* in the woods and *A. ruta-muraria* on the cliffs. Up on the old railway we visited a cutting where we found a large colony of *G. robertianum.* My main reason for this visit, however, was to show the party a new locality for *D. villarii* which I had recently discovered. I had found just two small plants of this fern which is only recorded from one other place in Derbyshire. We were not able to find any more plants, but the cutting is very extensive and time was short. The plants are producing spores and it is imperative that no material is collected. We added *D. pseudomas* and *E. fluviatile* to the list on the way back to the car. The latter suggests that *E. X litorale* should be looked for here. Another possibility is that the *A. trichomanes* on the basalt could be the calcifuge subspecies; much work remains to be done in this locality. After lunch we visited Cressbrook Dale (43/1773) where there is a record for *Hymenophyllum wilsonii.* Much of the valley is calcareous but the basalt again outcrops here. A very wet acid flush received a lot of attention but the fern was not found. *A. filix-femina, D. filix-mas, D. dilatata, P. aculeatum* and *A. scolopendrium* all reach impressive size here, and *A. trichomanes, A. ruta-muraria, C. fragilis* and *P. vulgare* agg. were also found. Surprisingly, this was the only locality visited where *A. scolopendrium* was abundant.

Nick Hards

Joint BPS/BSBI meeting at Brathay Field Centre, Ambleside, Cumbria — 26/28 Sept. This innovation in our annual programme was highly successful and, I hope, will set a pattern for future such meetings. Possibly slanted more towards the botanist than the grower of ferns, nevertheless there was much which was of more than passing interest for the latter. This must perforce, because of space limitations, be a very brief account, and I cannot do more than just list the speakers and their subjects.

We assembled, about 60 strong, on the Friday evening at the Centre and I was pleased to note that our Society kept its end up, numberwise, with about 15 members present which, taking the respective sizes of the two societies into account, was very satisfactory. The Friday evening was a busy one, making preparations for the next two days, setting up exhibits and discussing them with specialists, while the speakers were planning presentation methods for their talks.

On Saturday, Clive Jermy standing in for the President of BSBI, Dick David, took the chair and opened the meeting with a résumé of fern studies in Britain and Europe. He was followed by Mary Gibby talking on the role of chromosome studies in fern taxonomy, and next by Chris Page on an ecological approach to fern distribution in Britain. After a break for coffee we turned our attention to France to hear Frederic Badré discuss the problems in the study of the fern flora in France. Unfortunately, as he elected to speak in French, some of us not quite so fluent in this language as he was, had some difficulty in following him! General discussion followed, then the whole party set off for Borrowdale, taking packed lunches with us, for an afternoon in the field, led by Mary Gibby. Our local member, Fred Jackson, was billed to accompany her, but Fred unfortunately, did not feel fit enough for the scramble in Johnny's Wood and on Castle Crag. After dinner we had a very interesting talk by David Allen, author of the book *The Victorian Fern Craze,* on "Pteridomania" and its influence on present-day pteridology. This ended our first day, a most successful one.

On Sunday, I, as President of BPS, took the Chair. The first speaker was Jacob Schneller from Switzerland, who discussed the problems and recent studies in the *Dryopteris filix-mas* aggregate. He was followed by Marion Barker and Chris Page who talked about their work on recent discoveries in *Equisetum* hybrids. Next, Clive Jermy spoke on researches by himself and Tess Styles on the hybrid clubmoss *Diphasiastrum issleri* in Britain. After coffee, Bob Macdonald discussed his studies into the *Cystopteris fragilis* complex, and the last talk, by Anne Sleep, was on the *Asplenium adiantum-nigrum* complex in the British Isles.

The programme was planned to allow for 50 minutes of general discussion to wind up the formal meeting, but all the speakers found difficulty in keeping to their time limits with the result that there was time only for a very brief and hurried winding up before lunch. In the afternoon Mary Gibby and Clive Jermy led an excursion to Brathay Woods and surrounding areas, after which the meeting broke up.

J. W. Dyce

WEEK MEETING

The Lake District, Cumbria — 30 August/6 September. Where members attending were concerned this meeting was most disappointing. Only Martin Rickard and Jimmy Dyce joined our leader, Robert Sykes, for the whole week. The centre was Robert's home at Crosthwaite, Kendal, and he had mapped out an interesting programme in the area, supplemented by suggestions from Martin who had done a lot of homework on the various fern localities, and also on the old Lakeland members in the early days of the Society, in the hope that investigation by us would uncover some of their ferns or good progeny still surviving in their gardens or in the vicinity. We were pleased to be joined on the Sunday evening by Sylvia Weatherlake and a friend. They stayed with us till Tuesday afternoon and on Wednesday evening Nigel Hall arrived to spend the following day with us. This completed our very small party although disappointing our small number did have the advantage of allowing us to be very mobile and cover a lot of ground during the week. The joint planning of Robert and Martin made it a very rewarding one, fernwise, and at the end we all had a goodly load of plants to take home. The weather, too, was most kind to us and our only rain was in the morning of our last day, Friday.

From our centre we could look across the valley to Whitbarrow (Grid. ref. 34/48), that big lump of limestone lying between Kendal and Lake Windermere. Little more than a mile distant to our west, this was the obvious choice for our first day's hunting, and situated as we were, it was also obvious that we should choose a new route up its eastern slopes instead of up the steep western scar, our invariable approach on previous visits. A rough track enabled us to take the car fairly high, thus saving walking time through the wooded hillside with the usual selection of woodland ferns, and giving us more time on the more interesting high limestone plateau and scars. We have recorded the fern population of Whitbarrow many times and published our findings in our journals so I am not going to go into details this time. Suffice it to say that we added two more, *Dryopteris X tavelii* and *Polystichum setiferum,* to the 24 species previously recorded, and for the benefit of newer members I give the complete list of 26 here — *Asplenium ceterach, A ruta-muraria, A. scolopendrium, A. trichomanes, A. viride, Athyrium filix-femina, Blechnum spicant, Cystopteris fragilis, Dryopteris carthusiana, D. dilatata, D. expansa, D. filix-mas, D. oreades, D. pseudomas, D. X tavelii, D. villarii, Equisetum fluviatile, Gymnocarpium robertianum, Ophioglossum vulgatum, Oreopteris limbosperma, Phegopteris connectilis, Polypodium interjectum, P. vulgare, Polystichum aculeatum, P. setiferum, Pteridium aquilinum.* Many were in abundance, particularly *A. scolopendrium, D. villarii, G. robertianum* and there was a super-abundance of *P. connectilis.* We were continually finding great drifts of this lovely fern. The lime-hating *B. spicant* was of course scarce, only to be found in places where the lime had been leached from the surface soil. *D. carthusiana* was seen in several places, *D. dilatata* was infrequent, *O. limbosperma* was fairly common, but only one plant of both *D. X tavelii* and *P. setiferum* were seen. It was interesting to find *P. setiferum* which has successfully eluded our searching over the many years we have hunted this hill.

The day was bright and sunny, something we have experienced very rarely on Whitbarrow which has usually reserved its worst weather for us, greeting us with cold rain driven by high winds! We made the most of the prevailing conditions which enabled us to explore much new ground, both in the rocky places and on the wooded slopes. It was a rather tiring day but was greatly enjoyed.

In the evening we were joined by Sylvia Weatherlake, a new member, along with a friend, who accompanied us for part of the day on Monday. We began with a visit to Roudsea Nature Reserve on the River Leven estuary near Haverthwaite (34/8132-33, 8232-33). We have visited the reserve on two previous occasions in 1964 and 1970 when we had the benefit of the warden's guidance which enabled us to see all the rarer ferns. This time we were on our own so our list of records did not reach the 19 seen on those earlier visits when we were shown *Botrychium lunaria* and *O. vulgatum.* Again for the benefit of newer members, unable to refer to our earlier records, I list all the ferns found in this reserve during our three visits — *A. ruta-muraria, A. scolopendrium, A. trichomanes, A. filix-femina, B. spicant, B. lunaria, D. carthusiana, D. dilatata, D. expansa, D. filix-mas, D. pseudomas, E. arvense, O. vulgatum, O. limbosperma, Osmunda regalis, P. connectilis, P. vulgare, P. aculeatum, P. aquilinum.* Also seen in great abundance was the dwarf creeping form of *D. dilatata,* a fern which interests me greatly. It always suggests to me hybridity between *carthusiana* and *dilatata* but I cannot convince our botanist friends of this fact. During this visit, too, we saw a very extensive colony of *B. spicant,* in which many of the plants were departing from the normal with the occasional frond divided at the apex.

From Roudsea we moved north to Rusland Wood (34/3388), a rather wet place where the going was very rough and exhausting, and the ferns few. We recorded 9 species — *A. ceterach*, *A. trichomanes*, both on a bridge at the entrance to the wood, *D. carthusiana*, *D. dilatata*, *D. filix-mas*, *O. regalis*, *P. connectilis*, *P. vulgare*, *P. aquilinum*. Only *D. carthusiana* was in abundance, in a habitat most suitable for it, and the *O. regalis* was one large plant only. Most of the woodland was entirely devoid of ferns. Still moving north we stopped for lunch near Thwaite Head (34/3590), and a brief hunt of the roadside and wood produced 9 species — *A. filix-femina*, *B. spicant*, *D. dilatata*, *D. filix-mas*, *D. pseudomas*, *O. limbosperma*, *P. connectilis*, *P. vulgare*, *P. aquilinum*. Further on a short stop was made to follow a footpath leading eastwards to the Cunsey Beck (34/3793) and similar ferns were noted. At Near Sawtry (34/3695) a colony of *Onoclea sensibilis* growing by the roadside was visited, and from here we travelled to Ambleside where our last stop was at the large garden centre which stocks a good selection of ferns.

When planning the programme for this meeting we decided that a visit to Hutton Roof Crags was becoming too much of a regular event, and was definitely "out" — over the years we have fully recorded all the ferns likely to be found there. However, it was a useful place to introduce Sylvia Weatherlake, a newcomer to ferns and the Society, to the limestone species and so, once again, on the Tuesday we scrambled over the limestone pavements of this most interesting hill. We began the day with a visit to Sedbergh, on the way there stopping to pay a short visit to a colony of *O. vulgatum* known to Robert, growing on Kendall Fell (34/5092-93). There is a very good secondhand bookshop in Sedbergh and we were all able to make some fern book purchases. Martin, always on the scent of old fern variety records, wanted to have a look at the Frostrow Fells (34/67-6890) where, in the early days of the Society, it was reported that a crested form of *O. limbosperma* grew in large numbers on the lower slopes. Not only did we not find this variety but found not a single fern of any kind, not even bracken, growing on this hillside except a few plants of *Cryptogramma crispa* on a scree slope. A likely explanation would seem to be that at some time the hill had been sprayed with a bracken killer which had, of course, wiped out all other ferns as well. In a small gully below the Fell, carved out by one of the hill streams, were a few scattered ferns, among them the occasional plant of *O. limbosperma*, looking very normal.

After this futile search we set off for Hutton Roof (34/5577-78, 5677-78). The day was warm and sunny, so Sylvia was able to see the ferns under very favourable conditions. I do not propose to list them here for they have been fully recorded so many times in the past and nothing new has been added to the list. Our minds were more occupied with varieties and we still hope that one day we shall find a good *A. scolopendrium* 'Crispum' on this hill, but when we DO find it no doubt it will be growing at the bottom of a very deep and narrow grike, and impossible to reach!

Wednesday was a garden day and we began with a visit to a friend of Robert's, Mrs Jackson,who lives at Heversham and has a large number of good fern varieties in her delightful garden. We were made most welcome and were shown round the garden after enjoying a cup of tea, and we departed the richer by many pieces of her choicest ferns, generously presented to us by our hostess. After this most pleasant start to the day we continued on our way to visit Reginald Kaye's fern nursery in Silverdale. Unfortunately, Reg was not at home and we wandered around on our own admiring his very extensive collection with its many treasures. We promised ourselves a return visit later in the week.

In the afternoon we retraced our steps to Sizergh Castle near Kendal where we received a warm welcome from Malcolm Hutchinson, an old friend, who has charge of the gardens. He took us round the many ferns of interest in the large collection scattered throughout the beautiful gardens, enriched with much rockwork and water, and the latter graced with magnificent specimens of the Royal Fern growing happily at the water's edge. Malcolm is a very keen fern man, although not a member of our Society, and he has a good knowledge of the varieties, of which he grows a large number of the best. Any member visiting this National Trust Garden should try to contact him. I should add that he is a very busy man with not only Sizergh Gardens to supervise, but I am sure that if you are interested in fern varieties and he has the time to spare, he will be happy to show you round. By the time we had finished "drooling" over fine ferns and enjoyed a much appreciated cup of tea from Mrs Hutchinson, it was time to go on our way, once more enriched with some fine ferns.

But the day was not yet finished. In Kendal is the old home of the Wiper family who were stalwarts in the early years of the Society and had a fine collection of ferns. The house has changed hands many times since the Wipers left to begin a new life in British Columbia in the early years of the century, but the ferns remain although not so many, certainly, as in the heyday of the garden. Fortunately its successive owners have all respected the ferns, although knowing little about them, and have welcomed visits from members of the Society on many occasions. Mrs Taylor, the present owner, is no exception and we had an enjoyable time when we called and were given permission to browse round the garden. Several very good ferns still remain. Again we departed with another collection to add to the "loot" steadily accummulating in the boot of the car! Already we were beginning to exercise our minds with the problem of where in our gardens we would find room to squeeze it all in!

We reached home to find that Nigel Hall had arrived to spend the next day, Thursday, with us. We drove to Borrowdale, stopping en route in Keswick where we visited the colony of crested *A. trichomanes* which grows on an old wall. This colony has had a checkered existence — at times it has flourished with many hundreds of good first-rate varieties of *cristatum* and *ramosum* decking the wall which belongs to an old terrace house, it has lived through periods of drought when it has been decimated and it has suffered at the hands of zealous, over-tidy owners who have "weeded" the wall. Still it survives and this year seemed to be slowly recovering from one of its adverse spells. The colony is too securely established to get wiped out and the wall must be impregnated with crowns still very much alive and with spores which continue to produce more of the superb varieties which characterise the colony. Many of its plants grace fern collections throughout the country and appear in fern shows and they are unsurpassed by any similar varieties. The colony is a "store-house" to which we can return again and again to collect some of its best specimens and we need not feel that our restrained "weeding" will do any harm.

Driving through Keswick with eyes alert for ferns in gardens, we spotted one tiny "pocket-handkerchief" plot which contained a few very good ones. The lady of the house, old and frail, was able to recollect that the fine *A. filix-femina* 'Frizelliae' by her front door had been there for as long as she could remember, and it was obviously one of the survivors from the time when our Society began its life in the Lake District in 1891 and the whole area was in the grip of the Victorian Fern Craze. It is a large plant with many crowns and we have been promised some later when it is divided.

In Borrowdale we travelled to the head of the Dale to visit Fred Jackson in Stonethwaite. We never tire of seeing his small but very choice fern collection. After lunch he joined us for a time in the afternoon and down the Dale we made a brief stop in the village of Grange to see the colony of ramose *P. vulgare* which adorns one of the village walls. Like the Keswick colony of *A. trichomanes* crested and ramose varieties, this colony of *P. vulgare* is very securely entrenched and allows those of us who know of its existence to collect the occasional bit of rhizome with a couple of fronds without in any way imperilling its existence. Indeed, all the time it seems to be spreading and our "culling" can only give its searching rhizomes more room to develop! A little further down the dale is the old, at one time very well-known, fern nursery of W F Askew, now very much overgrown and in ruins — its great collection of magnificent varieties perished through neglect, with only a few of the more strong-growing fighting on for existence. Outstanding among these survivors is a magnificent *D. filix-mas* 'Multifidum', a strong-growing variety with heavy distinctive crests on the pinnae, and *D. filix-mas* 'Grandiceps Askew', a huge plant flourishing at the front door of the house. Miss Askew, a daughter of W F Askew, now in her eighties, showed us round and permitted us to collect crowns from some of the plants. We looked around, wondering what other good things were hidden in the dense undergrowth which almost obliterates the whole garden and the old greenhouse ruins, and feeling how tragic it was that the well-known nursery and all its fern treasures should come to this. In an adjoining narrow strip of ground bordering the road are many good varieties, some obviously planted there originally, possibly as a "shop-window", and others self-sown from spores. Many self-sown varieties of good quality, clearly originating from the nursery, have in the past been collected from the surrounding country-side and many more are still there waiting to be found.

After returning Fred to his home a quick run was made north-west to some old quarries at Brigham (35/0830). In the past a very good colony of ramose *A. scolopendrium* flourished here and during the last visit several years ago some first-rate specimens were collected. Alas! the quarries are now being filled in and the wall with its colony of the fern has been almost buried. Only its top remains uncovered and we were able to find only two fairly good *ramosums* which were collected, but a large number of much better ones of which we took only a few on our previous visit, are irretrievably lost — an excellent example of the truth that where a fern *variety* is concerned, conservation means, do not leave it where it is but get it out of the wild as quickly as possible and into the protection of a garden. Sadly, I still remember the many fine ramose specimens of *A. scolopendrium* we left in that quarry so that the colony would not be wiped out, but would (we hoped) continue to flourish and provide good pickings for future visits!

Apart from the scramble on Hutton Roof and our day on Whitbarrow we had not been on any high ground all week and Martin was straining to get up high after woodsias, and explore some of the old recorded habitats. It was decided we would remedy this omission on the Friday, but alas! it was raining steadily and some re-thinking was done. There were still old fern gardens awaiting our attention, among them that of F Atkinson who had lived in Stavely (34/3886) near Newby Bridge, and was one of the original members of our Society. Walking along a lane, we learned from an old lady, whose garden with some good ferns we stopped to admire, that she remembered Mr Atkinson and his fern collection. His house was only a short distance further up the lane and as we drew near it became obvious that a fern variety collection was or had been in the neighbourhood. Many passable varieties began to appear at the roadside and when we reached the house it seemed that there was a larger collection outside the garden than in it. Very good crested lady ferns and male ferns were quite abundant and one large colony of *D. filix-mas* 'Linearis polydactyla' occupied a slope by the roadside. We called on the owner who had recently moved in and were given permission to take any of the ferns we wanted — he was going to make extensive alterations and his plans did not include the ferns. Most unfortunately, he had already begun to clear the garden and most of the ferns had their fronds cut off so we had great difficulty in recognising which were worth collecting. It may be that some of the best plants have been left because of this. However, we had quite a good haul from the garden and adjacent lane, and in consequence presented ourselves with more space problems to be solved on our return to our respective homes! The garden is a clearing in undulating woodland, with shallow soil over rock which in places rises to the surface to form natural rock gardens. Friend Atkinson must have had as fine a fern garden as ever existed anywhere, and we are sad to think what may be created in its place, but happy that we were in time to save some of the ferns, even though it will be next year before we really know what we collected. It was noted that the collection consisted of mainly lady ferns and various male ferns, and one would have expected to see some polypody variations and certainly scolopendrium ones, but not a single plant of either species could be seen — why? Perhaps we were not the first collectors on the scene and even luke-warm fern lovers are likely to find polypodium and scolopendrium varieties of more interest than the other species. Since many of the first-rate scolopendriums were found on the limestones not far distant, such as 'Crispum Nobile Bolton', Atkinson must surely have included some in his large fern collection, as well as a selection of the polypodies.

After lunch another early member, W B Baker, was traced to Backbarrow, but this time no ferns were to be seen, only a row of small houses with equally small gardens. But now the weather had cleared up into a fine sunny day, and Robert and Martin's desire to climb had returned, so we travelled up the road leading to the Kirkstone Pass, parking the car at a convenient place a short distance south of the Kirkstone Pass Inn. From here they climbed to Scandale Fell (35/3708-09, 3808-09) in search of woodsias, but did not have any luck.

This finished our week's hunting and on the Saturday morning Martin and I set off homeward bound, calling on the way for a second visit to Reginald Kaye's nursery, and still more ferns were added to the load in the car! In spite of the very small numbers present, this meeting was a very successful and interesting one, with its several visits to fern gardens, past and present. Good wild finds were few, only three being seen, a plant of nicely crested *D. filix-mas* seen on Whitbarrow and two crested scolopendriums in Brigham Quarries. These were more than supplemented by the many plants acquired from the various gardens we visited. As we were covering ground already hunted on many previous occasions, a minimum of recording was done, but on Whitbarrow we were able to add two more ferns to our list, one of which, *P. setiferum,* was a new record for the *Fern Atlas.* Other new *Atlas* records were *D. oreades,* found on Scandale Fell and *O. vulgatum* on Kendal Fell. The party was disappointingly small, and discouraging for our leader, Robert Sykes, but I think he probably had a greater reward for his preparatory work in that our small and dedicated party was able to cover more ground, and see and do much more than a larger party could have done. Martin and I certainly have no complaints and we thank Robert for laying on a most rewarding meeting.

NEW FERN VARIETY FINDS

J W Dyce

With the exception of a long list from Martin Rickard, very few new finds have been reported to me this year, possibly because I was out of the country for a good part of the summer. For many years I have been virtually the sole bearer of the variety hunters' flag, handed down to me via Percy Greenfield, an indefatigable hunter and the last of the old hunting brigade – he was the son-in-law of our great authority on fern variation, Dr F W Stansfield. Now I have a worthy successor in our Editor who, like me, came into the Society as a "species man". In fact, Martin was rather scornful of "monstrous" ferns but now there is no holding him where varieties are concerned, and he has an excellent "nose" for them. While writing this report at the end of October, I received a frond sent by him from Devon where he was on holiday, and I regard the plant as one of the best post-war discoveries. It is a *Polystichum setiferum,* a single crown found in a lane, with very plumose fronds. The pinnules are long, wide and deeply incised, the lower ones more elongated and falcate, so much so that they densely overlap. It is the nearest thing to a *pulcherrimum* I have ever seen, and in good cultivation may even prove to be one of this rarest form of variation. If so, it will be the first to be found for over 100 years – only 16 have ever been discovered, all in the sixties and seventies of the last century. I shall be keeping close watch over the development of this latest find.

Good as many of them are, the other ferns on Martin's list – 13 in all – fade into insignificance when compared with the above find. A number of them have been found during his frequent visits to the West Country, and include a good *P. setiferum* 'Hirondelle' type. The original 'Hirondelle' has long been lost and, as the name implies, had narrow pointed pinnules, the opposing pairs on the pinnae looking exactly like swallows in flight. This new find is not as good as the named plant but approaches closely to it. More *setiferums* from the same area include a good 'Crispatum', a 'Cristato-gracile', a 'Multifido-pinnatum' and a very good *Dryopteris filix-mas* 'Grandiceps'.

During our week meeting in the Lake District this autumn Martin Rickard and I, along with Robert Sykes, found a *D. filix-mas* with very good pinnae cresting on Whitbarrow, and in an old quarry at Brigham there were two ramose specimens of *Asplenium scolopendrium,* the remnants of a good colony of this variety which used to exist here. In the vicinity of the old fern garden of one of our Society's early members we found a large number of very passable varieties of lady ferns and male ferns, obviously spore progeny of plants in the garden, and several of the best were collected as well as (with the permission of the present owner) many plants from the garden itself. (See the Lake District meeting report in this issue for details of this fern garden and the Brigham quarries).

John Barnett reports the finding of a crispate form of *Oreopteris limbosperma.* Two years ago Martin Rickard found a cristulate form and although neither of these finds is in the first rank they are proof that the species *can* still vary in spite of the many years during which it has remained consistently normal. As I remarked when reporting the *cristulate* find last year, these discoveries may be the precursors of a new spell of variation in the species. Incidentally, it is worth recording here that John who has been the finder of many good things over the last several years, has bred an *A. scolopendrium* which bears bulbils on the upper surface of the fronds. This variation is very rare – Lowe and Druery report the finding of a plant in Ireland over 100 years ago, since when it has not appeared again until John Barnett bred a plant a few years ago. Unfortunately, this plant was lost but another has now appeared in a spore sowing and has been named 'Viviparum Barnett'.

This year I was shown by Ray Coughlin a frond of a very good fully crested bracken, very similar to the one which still grows in the Wipers' old garden in Kendal (see the Lake District meeting report in this issue). The plant was found in his local area, near Bromsgrove in Worcestershire, but it is suspected that the rhizome has escaped from the confines of a nearby garden and is probably from the same clone as the Wiper plant.

While over in the U.S.A. this year I found that fern variation is by no means restricted to our country. The common fern in the Seattle area where I was staying, up in the extreme north-west in the State of Washington, is *Polystichum munitum,* and in fact, over a very large area south of this centre and up into British Columbia in Canada it is so abundant everywhere that, like the bracken in this country, it can be regarded as a weed. However, it was not so to me, and I quickly discovered that in places there were good serrate, setose and unduiate specimens to be found; a crested form has also been recorded. During a visit to the Cascade Mountains, inland from Seattle, I found a very good *Cryptogramma crispa* which had incised pinnules and was much more delicate in appearance than the normal form. It was restricted to one crown with a habit similar to *Blechnum spicant* — the barren fronds were very outspread while the fertile ones grew rigidly upwards. The plant was collected and is now in a Seattle garden where I hope it flourishes.

While visiting our member Tom Wash at his Central California Fern Production Nursery in Fresno, California I was shown a magnificent plumose variety of *Woodwardia radicans*. The normally rather plain pinnules of this fern are greatly enlarged, divided and overlapping, the whole combining to make the plant one of outstanding beauty and refinement. To my knowledge this is the only known variety of this species which in one leap, with no intermediate half measures, has reached the highest heights. Its history is reminiscent of the finding of *Osmunda regalis* 'Cristata' — the dormant crown was among a batch purchased by Tom's partner, Ron McCormack, and it was not until later when the new fronds developed that its value was revealed. This exciting new find has been named *W. radicans* 'Plumosum McCormack'.

One of the American polypodies, *P. glycyrrhiza,* is very similar to our *P. vulgare* and at one time was known by this name. A variety found some years ago in the north-west is very similar to our 'Cambricum', and was named 'Cambricum Malahatense' after the place where it was found. I pointed out that we must regard the name *cambricum* as belonging *only* to the variety of *P. australe,* and have suggested that it be renamed 'Plumosum Malahatense'.

This has undoubtedly been a good year for new finds and, as well as these mentioned here, many others of lower standard but still worthy of a place in the garden, have been found.

Postcript. Martin Rickard has done it again! Since writing the above he has again contacted me from Devon to say he has made another good find, a very fine *Polystichum setiferum* 'Divisilobum'. The frond sent to me shows it to be of the very finely divided *Divisilobum Wollaston* type, but the pinnules are not so elongated and slender. It must, nevertheless, rank among the very best of the divisilobes.

I think back to the time when Percy Greenfield and I walked those Devon lanes year after year in the same area, always looking for the *divisilobum* we never found, and Martin goes out and finds two first-rate prizes in one week. If I had a mean nature I would exclaim — "It's not fair"! Thankfully, I have not, and this luck could not have happened to a better person!

PTERIDOPHYTE RECORDS – 1980

Compiled by A R Busby

During the last year, problems have arisen concerning the receipt of incomplete records. Additions to the Atlas should be submitted on Individual record cards. The minimum information required is name of recorder, date, six-figure grid reference, locality, habitat, vice-county number and name. Critical species should also have a pressed frond with the card, as a voucher specimen. One species cards are available from the Biological Records Centre at Monks Wood. The full address is given at the end of these records.

As usual, I would like to express my thanks to all BPS and BSBI members, to the many vice-county recorders, and especially to A C Jermy and his staff in the Fern Section of the British Museum (Natural History), and also to Mrs Dorothy M Greene of the Biological Records Centre, Monks Wood,for their help.

The following new records have been received up to 1st October 1980 and have been forwarded to the Biological Records Centre.

ENGLAND, WALES AND SCOTLAND – Post 1950

1.2 **Lycopodium clavatum** – 18/88, J H Fenton. 35/54,R W M Corner. 35/84, M Burnip and P Tolfre. 35/82, G G Graham. 43/37, Miss M C Hewitt. 45/04, T Dunn.

2.1 **Lycopodiella inundata** – 18/87, J H Fenton.

3.1 **Huperzia selago** – 34/79, W A Sledge.

4.1 **Diphasiastrum alpinum** – 18/79, J H Fenton. 19/10, D & J Bowman. 38/31, D Welch. 45/02, M Bradshaw & L Sykes.

5.1 **Selaginella selaginoides** – 18/88, J H Fenton. 35/93, A J Silverside.

7.1 **Equisetum hyemale** – 32/97, F Fincher. 35/83, BPS. 45/14, A & R Groom.

7.3 **Equisetum fluviatile** – 34/79, W A Sledge. 45/02, 44, G G Graham.

7.4 **Equisetum arvense** – 18/88, J H Fenton. 45/45, 46, 53, M Burnip.

7.4x3 **Equisetum x litorale** – 43/24, 46, A Willmot.

7.6 **Equisetum sylvaticum** – 34/79, W A Sledge. 43/46, 47, A Willmot. 45/41, G G Graham.

7.7 **Equisetum palustre** – 18/88, J H Fenton. 26/60, O M Stewart. 45/36, G G Graham.

7.7x8 **Equisetum x font-queri** – 42/04, R H Roberts.

7.8 **Equisetum telmateia** – 21/48, A R Busby. 45/24, G G Graham.

8.1 **Botrychium lunaria** – 29/10, J H Fenton. 45/43, G G Graham.

9.1 **Ophioglossum vulgatum** – 32/47, J Bingham. 43/21, A Willmot. 45/12, J W Patrick. 45/34, O R Stevenson. 52/97, K Carlisle.

9.2 **Ophioglossum azoricum** – 29/46, Miss E R Bullard.

10.1 **Osmunda regalis** – 18/88, J H Fenton. 45/24, G G Graham.

11.1 **Cryptogramma crispa** – 18/97, J H Fenton. 35/54, 36/35, R W M Corner.

13.1 **Adiantum capillus-veneris** – 52/35, N Stewart.

14.2 **Hymenophyllum wilsonii** – 18/88, J H Fenton.

16.1 **Polypodium vulgare** – 43/06, 16, 27, 98, A Willmot.

16.1-3 **Polypodium vulgare agg** – 45/21, 25, G G Graham.

16.2 **Polypodium interjectum** – 35/83, G G Graham. 43/07, 15, 16, 36, A Willmot.

16.2x1 **Polypodium x mantoniae** – 28/67, U K Duncan. 35/53, R W M Corner. 43/26, 27, 36, A Willmot.

17.1 **Pteridium aquilinum** – 34/79, W A Sledge. 45/36, 45, G G Graham. 54/26, N Hards.

19.1 **Phegopteris connectilis** – 35/83, A G Proctor. 35/93, C R Stevenson. 36/26, E P Beattie. 45/02, 03, M Burnip.

20.1 **Oreopteris limbosperma** – 32/77, J Bingham. 34/79, W A Sledge. 35/83, Mrs S Ivy. 43/34, 36, 46, A Willmot. 45/05, G H Ballentyre.

21.1 **Asplenium scolopendrium** – 35/83, Mrs S Ivy. 38/86, D Welch. 43/10, A R Busby. 45/24, G G Graham.

21.2 **Asplenium adiantum-nigrum** – 36/22, 32, 41, 43, 53, 63, R W M Corner. 42/05, A R Busby. 43/06, 56, A Willmot. 43/23, Rev. E A Pratt.

21.6 **Asplenium marinum** – 38/86, D Welch. 43/33, A Willmot.

21.7 **Asplenium trichomanes agg.** – 32/95, 42/18, 43/10, A R Busby. 34/79, W A Sledge. 45/42, R J McAndrew. 45/43, P R Appleyard.

21.7a **Asplenium trichomanes subsp. trichomanes** – 35/32, 60, M G Coulson. 36/12, A C Jermy.

21.7b **Asplenium trichomanes subsp. quadrivalens** – 35/32, 42, 60, M G Coulson. 35/53, 52/74, J G Samson.

21.8 **Asplenium viride** – 34/79, W A Sledge.

21.9 **Asplenium ruta-muraria** – 34/79, W A Sledge. 36/41, R W M Corner. 42/38, A R Busby. 43/09, Mrs P Anderson. 45/20, M Burnip. 45/36, R Boyce.

21.11 **Asplenium ceterach** – 34/79, W A Sledge. 42/07, 38, 43/10, A R Busby. 43/37, L Stores. 45/02, J Holloway.

22.1 **Athyrium filix-femina** – 34/79, W A Sledge. 54/26, N Hards.

23.1 **Gymnocarpium dryopteris** – 38/86, D Welch.

23.2 **Gymnocarpium robertianum** – 28/39, M Reynolds.

24.1 **Cystopteris fragilis** – 34/79, W A Sledge. 45/11, M Burnip. 45/25, Miss M McCallum Webster.

26.2 **Polystichum aculeatum** – 33/50, I Bonner. 34/79, W A Sledge. 36/41, R W M Corner. 38/86, D Welch. 43/36, A Willmot, 54/26, N Hards.

26.3 **Polystichum setiferum** – 30/89, G S Joyce. 51/37, J E Smith & S Wenham.

27.1 **Dryopteris oreades** – 17/67, H Corley.

27.2 **Dryopteris filix-mas** – 08/81, R J Pankhurst. 33/35, J E Bowman. 45/52, G G Graham.

27.2x3 **Dryopteris x tavelii** – 43/25, 26, 35, A Willmot. 45/15, R E Groom. 45/24, E Philp. 51/45, A C Jermy.

27.3 **Dryopteris pseudomas** – 25/16, O M Stewart. 45/01, M Burnip. 45/11, M J Wigginton. 45/14, 24, G G Graham. 45/33, B W Davis. 45/34, A J Silverside. 54/26, N Hards.

27.5 **Dryopteris aemula** – 17/71, H Corley. 29/14, E R Bullard.

27.6 **Dryopteris villarii subsp. submontana** – 32/00, R C Stern. 43/17, N Hards.

27.8 **Dryopteris carthusiana** – 35/94, M Burnip & P Tolfre. 36/14, D J McCosh. 43/16, 26, 46, A Willmot. 43/46, Mrs M Robson. 45/08, G G Graham. 62/25, E. Milne-Redhead.

27.9 **Dryopteris dilatata** – 54/26, N Hards.

27.9x8 **Dryopteris x deweveri** – 25/26, A J Silverside. 43/25, A Willmot. 51/45, A C Jermy.

27.10 **Dryopteris expansa** – 08/97, 19/11, R J Pankhurst. 17/67, 68, H Corley. 35/82, C Page.

28.1 **Blechnum spicant** – 18/41, 54, J Campbell. 32/98, W G Teagle. 34/79, W A Sledge. 45/23, G G Graham.

30.1 **Azolla filiculoides** – 43/33, S Patrick. 43/43, P Wade. 44/73, H Flint. 45/16, I D Wallace.

Pre 1950

10.1 **Osmunda regalis** – 12/91, Mrs Rippon.

ERRORS – The following errors have been brought to my attention:

7.4x3 **Equisetum x litorale** should be H21/70, not 21/70, M Scannell. (My error).
21.6 **Asplenium marinum** at 45/36, 44, should be pre 1950.
21.11 **Asplenium ceterach** at 35/82, 83, should be pre 1950.
27.5 **Dryopteris aemula** at 45/33, should be pre 1950.

IRELAND – **Post 1950**

21.1 **Asplenium scolopendrium** – H22/63, S C Holland.
21.2 **Asplenium adiantum-nigrum** – H22/63, S C Holland.
21.7 **Asplenium trichomanes agg.** – H22/63, S C Holland.
21.11 **Asplenium ceterach** – H22/63, S C Holland.
26.2 **Polystichum aculeatum** – H22/83, D Synnott.

ERRORS

20.1 **Oreopteris limbosperma** – not H12/11, D A Webb.
11.1 **Cryptogramma crispa** – not HO2/75, M Scannell.

Individual Record Cards (Terrestial) and instructions for their use together with the publication 'Instructions for Recorders', compiled by John Heath and Diane Scott are available from Biological Records Centre, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs. PE17 2LS.

WELSH POLYPODIUM RESURRECTED

S. G. Harrison

Many members will know by now that the Welsh Polypody, *Polypodium australe 'Cambricum'*, was rediscovered in its original site in 1977 after a lapse of about 70 years. This was reported in the Bulletin of the Glamorgan Naturalists' Trust.

Welsh Polypody was first recorded in John Ray's Synopsis Methodica Stirpium Britannicarum, ed.1, 22, 1690, as:

> "Polypodium Cambrobritannicum pinnulis ad margines lacciniatis. Laciniated Polypody of Wales. On a Rock in a Wood near Dennys Powis [Dinas Powis] Castle, not far from Cardiff in Glamorganshire Wales."

In the Report for 1908 of the Botanical Exchange Club of the British Isles, *Polypodium vulgare* L. var. *cambricum* Willd. was reported as:

> "Still growing in Ray's old locality, near Cardiff, 14th Sept. 1908. Only sent on account of the historic interest. The fronds are at their best in April. – H. J. Riddelsdell."

W. Bell, Editor of the Report and Distributor for the Club, added:

> "This and the var. *serratum* – "(i.e. *Polypodium australe* Fée [S.G.H.]) " – are very acceptable contributions as one so seldom sees them except in cultivation."

The Reverend Riddelsdell must have played his part in ensuring that the Welsh Polypody continued to be seldom seen except in cultivation. It is to be hoped that all members will agree that it deserves to flourish and not be collected or disturbed in any way, on account of the historical interest.

Footnote by Clive Jermy:
"By international agreement names based on monstrous forms of plants are legitimate in botanical nomenclature. This means that *Polypodium cambricum* L. (Sp. Pl. 2 : 1086; 1753) is a name that must be considered as the earliest and therefore correct name for *P. australe* Fee. At the moment there is some debate as to whether the type of *P. cambricum* in the BM (Hort. Cliff. : 475) is indeed *P. australe;* it is sterile and it is difficult to be sure. Until this question is resolved we are retaining the name *P. australe* for the wild diploid species and *P. australe* cv. *cambricum* for the cultivated form."

THE FERN BOOKS OF FRANCIS GEORGE HEATH

Nigel Hall

Francis George Heath (1843-1913) was a prolific and enthusiastic writer about ferns and other natural history subjects. Unlike the fern books of E. J. Lowe which I discussed last year Heath's fern books are relatively cheap and mostly fairly common. Like Lowe, Heath was a populariser but whereas Lowe wrote for those already interested in ferns Heath set out to attract those with no prior interest. The number of books he wrote and the large number of editions of some of those books seem to suggest a degree of success.

Heath was one of those Victorians with prodigious energy and interests. Although he was employed full time by the Civil Service in the Outdoor Customs Department he found time to write over twenty books and play a major role in the conservation of some of the major areas of the British countryside. He was a pioneer of the 'open space' movement and was instrumental in securing the preservation of both Epping Forest and Burnham Beeches.

Heath's prose is not easy to read these days. It was written in a rather flowery, condescending 'my fair gentle reader' style that eulogises much but says very little. Even contemporary reviewers complained about his style. The Gardener's Chronicle (1876 Vol.6 : 22) commented about 'The Fern Paradise' that 'The chapters are somewhat high flown in style'. In common with a number of other Victorian horticultural and natural history writers Heath had both a patronising attitude towards his readers and a firm conviction that he was the ultimate authority on the subjects he wrote about. In spite of these limitations it is clear that Heath was a passionate writer about ferns and, to judge from the sales of his books, was able to convey some of that enthusiasm to his readers. It is surprising that for all his enthusiasm in print he was never a member of the British Pteridological Society.

Heath's first work on ferns was 'The Fern Paradise' published in 1875 by Hodder and Stoughton at a price of six shillings. Heath claimed that the first edition was reviewed by over one hundred journals. Most of these papers were rather obscure and local as even the ones that he does cite are rarely nationally known. 'The Fern Paradise' was subtitled 'A Plea for The Culture Of Ferns' and in the preface Heath claims that the book was written 'to assist in such a way as to lead to more extensive cultivation of ferns.' Whether it did or not can never be known for certain but it must be noted that 'The Fern Paradise' ran to eight editions, the last being published in 1908. In 1906 Druery, reviewing the seventh edition (Gardener's Chronicle 1906 Vol.30 : 68) says 'It is disappointing to find that despite the twenty seven years which have elapsed since the first one, he has apparently learned nothing new to extend the originally limited scope of his remarks.' It is certainly a feature of all Heath's books that once the text was written it was never changed. Druery in the same review also referred to the way that, 'the impression is generally conveyed that Mr. Heath, and none but he, had ever dealt with British ferns or advocated their culture.'

In 1877 'The Fern World' was published by Sampson Low et al. It cost twelve shillings and sixpence. For this sum the purchaser obtained twelve colour plates, three engraved plates and one Woodbury-type as well as the text. George Woodbury (1834-1885) developed a photo-mechanical process that gave continuous tone reproductions of photographs. Today, when most Victorian photographs are sepia coloured and faded Woodbury-types are still very clear and very black and white. Woodbury-types are eagerly sought by collectors. The fourth edition of 'The Fern Paradise', published in 1878, had four Woodbury-types. In 'The Fern World' Heath had his first contact with what he called 'nature prints'. He wrote in the preface 'It would have been opposed to the object of this work to illustrate it by mere drawings of ferns.' Heath's definition of 'nature prints' was that they were 'printed from photographs of fronds collected and grouped by himself.' Why, in that case, the Woodbury-types are not 'nature prints' is not clear. 'The Fern World' ran to twelve editions the last being published in 1910.

In 1879 'Trees and Ferns' was published by Sampson Low et al. It cost three shillings and sixpence. It was a compilation and Heath was clearly aware of both the return and the economy of effort involved in issuing extracts from previous books. 'Trees and Ferns' was a reprint of parts of 'The Fern World' and 'The Fern Paradise' together with extracts from 'Our Woodland Trees' (originally published in 1881). A second edition of 'Trees and Ferns' was issued in 1879.

A more significant and more contentious work was issued in 1881. It was titled 'Where to find ferns' and was published by Sampson Law at a price of three shillings. I have been unable to trace any reviews of the first edition and although reprinted in 1883 it was not until 1885 that it attracted attention from the reviewers. It was published in 1885 by the SPCK at a reduced price of one shilling and sixpence. This third edition included fifteen black and white illustrations, all reduced from the colour plates in the author's 'Fern Portfolio' (see below). The book was well received by the reviewers except for one important feature. The book included a chapter titled 'Ferns around London'. All the reviewers commented adversely on this chapter. The most outspoken was, perhaps surprisingly, Field (1885 Vol.66 : 175). The reviewer wrote, 'When we consider how completely ferns have been exterminated in the neighbourhood of London and how rapidly they are disappearing at greater distances, we can only regard this chapter in the light of a calamity.'Needless to say this was not one of the numerous quotations used by Heath to publicise the book.

In 1885 'The Fern Portfolio' appeared. It was published by the SPCK and cost a very reasonable eight shillings. It contained fifteen folio sized, chromolithographed plates. Never backward in making extravagant claims Heath states in the preface, 'No attempt has ever been made to give the public such minutely exact pictures of fronds on ferns.' Politely but pointedly the reviewer of the Gardener's Chronicle commented (1885 Vol.23 : 154), 'Mr. Heath must surely have overlooked the work of Mr. Thomas Moore. As an original work it is of little value and this makes the omission of reference to its predecessor the more to be regretted.' The Journal of Botany (1885 Vol.23 : 58) was more acid in its tone when it remarked, 'We think he overestimates the amount of time and labour which the execution of this work has required.' This was written in response to Heath's rather heroic paragraph about the 'many months of hard and patient toil.' 'The Fern Portfolio' was reissued twice in 1885 and never again. For all the critics' comments the work was certainly cheaper and more widely available than Moore's nature printed books.

A gap of twentyfive years occurred before the appearance of the next book on ferns. However, during this time there were several reprints of both the first two works on ferns. In 1910 'Fairy Plants : A Fern Book for Children' was published by Ousely. If Heath was patronising to his adult readers then he was positively condescending to his younger readers. Assuming the complete inability of children to understand elementary ideas he wrote about spore disposal saying, 'High up aloft they went and quickly they flew over fields, hills, woods and rivers chased by the racing, roaring wind.' Ironically (and typically of many Victorian writers for children) such reduction to fantasy of a simple and comprehensible concept is preceded by an almost impossibly difficult concept for young children, an invitation to consider a spore, 'one sixteenth thousand part of an inch long.'

In 1911 Pitman published 'British Ferns', a pocket sized companion for the fern enthusiast. This simple but admirably straightforward book was never reissued and is today the most difficult to find of Heath's books.

In 1912 'British Fern Varieties' was published by Charles Kelly. It also was never reissued but seems quite common in the secondhand book shops. 'British Fern Varieties' was published two years after Charles Druery's 'British Ferns And Their Varieties'. Even a cursory comparison of the two books indicates that Heath's is weak, inadequate and in some respects peculiar. Still clinging to the notion of himself as the general public's mentor in matters ferny he states in his preface, 'The novelty I have introduced — by giving English popular names to the varieties — will also I think be welcomed. I know of no other book that does this.' As a result of this 'novelty' the reader is introduced to such 'popular' names as the 'many shaped Harts Tongue', the 'short fronded Harts Tongue', the 'tapering Polypody', the 'Irish Polypody' and the 'beautiful hard prickly Shield Fern'.

Heath's books on ferns can hardly be recommended as vital reading for anyone interested in ferns. However as a record of a Victorian passion and as an example of the way one writer set out to cater for this passion,the books do have historical interest. In some respects they are important books. Very few people could afford some of the 'major' works on ferns. Many could afford and did buy books by Heath and it is quite likely that in some ways authors like Heath did more to shape popular taste than did many more serious or learned works.

FERN MEN IN THE AXE VALLEY

Barbara Kerr

(Extract from an article published in *'Pulman's Weekly News'*, Summer 1980)

In the Axminster area the presence of lias and greenstone rocks produced soils which raised a notable crop of farmers, geologists, botanists, and a prince of journalists, George Philip Rigney Pulman (1819-1880).

In March 1857 Pulman launched *Pulman's Weekly News and Advertiser* into what was a utilitarian and often a self-indulgent age. Pulman had some reason to "rejoice to see the man who, instead of yielding to low, debasing, sensual indulgence, can go forth and trace ... some of the loveliest plants with which out beautiful county is furnished in such rich profusion."

The 'loveliest plants' to which Pulman referred were ferns. At this time they had, like birds' eggs and butterflies, only to be seen to be collected. Pulman however was able to accept these inroads when undertaken by two of his friends, Zachary Edwards and James Moly. The payment which Edwards received for his articles, 'Ferns of the Axe', appearing in *Pulman's Weekly* 1859-1860 was blood money as regards the ferns but a life-line for the parson.

Living in Axminster, encumbered with relatives, Edwards trudged to his isolated parish of Combpyne where as rector he earned £150 a year; and to the Axminster Union Workhouse where he received a small and begrudged fee. But ferns abounded beside the tracks to Combpyne; and at the workhouse he received from old inmates whispered confidences concerning the curative powers of the many ferns usually prescribed by 'wise women' and 'botanical practitioners.'

Though the medical use of ferns was dying out in the mid-nineteenth century, the onslaught was continued by nurserymen, by ladies pressing ferns in albums or growing them under glass as 'our companions in the drawing room', and by botanists.

To help Edwards, Pulman vainly appealed for subscriptions towards producing an illustrated catalogue of Edwards' findings. Eventually publishers in Chard and London published his *Ferns of the Axe* (1862) with line drawings. In this work, which secured him a place among English botanists, the obscure and overburdened Edwards boldly asserted 'that there will not be a shadow of difference between the creation as narrated by Moses and other inspired writers, and as unfolded by the various discoveries in the bowels of the earth.'

Like many early botanists, Edwards was lavish in creating new species among which appeared Moly's Proliferous Fern. This was a tribute to James Moly (1826-1910) whose *magnum opus* on ferns Pulman had long encouraged and expected. As failures are often more indicative of an age than successes, the life of Moly is worth considering. Endowed with the serviceable qualities of good looks, great physical strength and longevity, Moly was hampered, as were many aspirants to fame at the time, by a crippling self-consciousness. His botanical interest, particularly in ferns, sent Moly wandering far beyond the boundaries of his home parish, Hawkchurch, but not beyond the confines of his prickly sensitivity. Widowed young, his beautiful and able mother, Ann, ran the village store, which still stands, and managed to send her son to the leading school in Lyme Regis, Monmouth House. In Lyme Moly became acquainted with those who were to become the illuminati of the marches. These friends included Pulman, who used one of Moly's Hawkchurch sketches in his *Book of the Axe* (1875), William Newberry and his son, Francis, Robert Hillman and Arnold Palmer.

In the 1850's Moly's botanical interests lay in the marshy outskirts of Axminster; but the revelry of the railway celebrations reached even these watery stretches. Moly fell in love with the sixteen-year-old daughter of a master-builder, much occupied with the town celebrations. Amidst this confusion Moly proposed, was accepted and sealed the contract by the gift of an Agapanthus, or love flower, Lily. As an outlet for his emotions Moly then embarked on a long botanical tour. He returned to find his betrothed had been married to a medical man whose qualifications presaged financial stability. Soon after this shock Moly lost his mother and also the Glebe Cottage which Ann Moly had held as a widow and a tenant of the rectorial manor of Hawkchurch.

By purchasing an imposing house, Langmoor Manor, still standing west of Charmouth Village, Moly made a desperate effort to rally from the loss of his betrothed, his mother, his home and his interest in botany. But it was too late to start again; and Moly, feeling 'unappreciated' by his neighbours, became a recluse. Some old inhabitants of Charmouth could remember creeping as boys through the overgrown garden of Langmoor Manor to peer into the drawing room. Here, amidst the ferns which had penetrated the rotting floor boards, stood Moly's waiting coffin. In the deluges of February 1910 Moly was carried to join his mother in the graveyard at Hawkchurch.

To emphasise his rejection of Charmouth, Moly left £400 to the Corporation of Lyme Regis for 'promoting the educational and intellectual well-being of the Borough'. With an eye on the rates, the councillors considered building 'twelve working-class dwellings'. This deviation from Moly's wishes was averted by the tactful intervention of Blanche, the daughter of Anthony Palmer who had been a close friend of George Pulman and was well acquainted with Moly.

IN SEARCH OF THE WORLD'S RAREST FERN?

Martin Rickard

Some years ago in a Newsletter article (in the days before the Bulletin) I concluded that *Woodsia ilvensis* probably claimed the dubious privilege of being Britain's rarest fern. I still hold that view, but recently the question of the rarest fern in the world came to mind when I saw a copy of the Plant Red Data Book. This work lists 250 of the most endangered plant species in the world. Surprisingly, it only includes 5 pteridophytes; of these 4 are either fern allies or seggregates of species not otherwise particularly rare. The only true species of fern included is *Asplenium jahandiezii.* Could this be the rarest fern in the world? I don't know, but I find the possibility very interesting, as a few years ago I spent a day in search of it.....

Its locality has been well known for 50 or so years as the Grand Canyon du Verdon in southern France. I had been camping about 70 miles away from the Grand Canyon and I succeeded in persuading the others camping with me (11 assorted relatives) that they really should visit this spot for the scenery. I don't recall actually mentioning ferns! Anyway, one day the trip was agreed and we set off rather late one morning from our campsite near Nice. Due to the winding mountain roads the journey turned out to be a very long 70 miles which in the end took us nearly 3 hours, leaving very little time to do any ferning.

When we arrived and I saw the country I wanted to search, my enthusiasm drained away; the area was vast and 99% of it inaccessible. I had known in advance that the gorge was about 15 miles long but the sheer cliffs dropping away 1000-1500 feet below the road were more than I had bargained for. Fortunately the views were magnificent and I resigned myself to sightseeing and joined the other tourists behind their cameras.

Like everyone else we drove along the road above the gorge, frequently stopping to admire the view. My only concession to ferns was to wander a yard or two from the car at each stop and peer into a few rocky crevices. I had never seen a picture or a frond of *A. jahandiezii* so I examined occasional plants of *A. trichomanes* and *A. fontanum* wondering if any of the minor variants could be the rare species. At one point, at what proved to be our last stop, I clambered behind a bush at the roadside to examine a dry north facing rocky overhang. There, clustered in several dry crevices draped with cobwebs, were a few ferns totally different from anything I had ever seen before. They were *A. jahandiezii!* I couldn't believe it, what luck! I picked a frond and ran back to the car to tell the others. On the way back I noticed some more plants, some growing in a comparatively modern road tunnel. Altogether I saw 30 or 40 clumps.

The accessibility of this colony must mean that it is well-known, nevertheless the habitat differs in two ways from that described in the Red Data Book. Firstly, the altitude at this point was about 500 feet higher than the given upper limit. Secondly, the habitat was dry, not wet as described in the book.

As this plant is actively colonising new roadside rocks and tunnels, with the whole of this enormous gorge at its disposal,it seems reasonable to assume that it is also well established on the miles of inaccessible cliffs below. So, hopefully, it is not particularly rare here and not seriously threatened. All the same it remains the world's only listed endangered fern species and therefore possibly the rarest fern in the world.

(P.S. I am not giving precise details of this habitat for conservation reasons).

SOME SMALL AUSTRALIAN FERN SPECIES THAT ARE HARDY AND WOULD POSSIBLY SUIT ENGLISH GROWING CONDITIONS

Ray Best

A request from Richard Cartwright prompted me to write about some of the smaller Australian ferns that might be suitable for cultivation in the UK. All would probably require some protection in the winter; however,I have chosen those that are most resistant to our climatic changes here,hoping they will perform as well in England.

Adiantum formosum: (Adiantaceae)

Called in Australia the 'Giant Maidenhair' or 'Black Stem'. This is our largest species of maidenhair with solid glossy black stipes. It is found in Queensland, New South Wales, Victoria and New Zealand. One point of importance here that applies to many ferns, and *A. formosum* in particular, is that it needs an unrestricted root run. Fronds are large, branching a number of times to form a triangular shape. Pinnules are dark green,mostly rectangular and alternating. On fertile fronds sori are borne on the backs of the two outer edges of the pinnae in a slight recess protected by a kidney shaped indusium; truly a stout resistant and easily grown fern.

Adiantum hispidulum:(Adiantaceae)

Known as the 'Rough Maidenhair', or to the Australian bushmen as 'Five Fingered Jack'. Rough,due to the somewhat rough stipes and coarse pinnae, 'Five Fingered Jack', because of the structure of the frond that branches to produce a fingered hand-like structure. The young fronds emerge a warm pink colour and change through light green to a deep glossy green at maturity. This species is widespread from Queensland, New South Wales, Victoria, Central Australia, New Zealand, Pacific Islands, Asia to Africa. Rhizomes are short creeping, much branched and producing many fronds from 30cm to 40cm long. Stipes are deep brown to black and carry transparent hair-like scales. Pinnae are rectangular or parallelogram-shaped with rounded serrations on the upper and outer edges. On the backs of mature fronds spores are borne in sporangia that are carried on the underside of the top and outer edges of the pinnae. The sporangia are covered by a protective indusium of an oval heart shape bearing protective hairs. This is an easy species to grow and most attractive.

Asplenium bulbiferum: (Aspleniaceae)

The common name is 'Mother Spleenwort', the mother title possibly because of its production of masses of spores along with many small plantlets on the fronds. Spleenwort comes with usage of the aspleniums in the highlands of Scotland where they were brewed into a tea to be used as a general tonic. This is another widespread species from Queensland, New South Wales, Victoria, Tasmania, South Australia, New Zealand and Asia. Fronds splay out from the crown to form a fountain-like shape. It suits a reasonably large pot or basket, it has light green attractive fronds and is quite a lovely fern. (Not hardy in my garden last winter, Ed.).

Asplenium lucidum: (Aspleniaceae)

This is a truly attractive fern from New Zealand. Pinnate fronds, 30cm to 1m in length, arise from a short creeping rhizome forming a crown. Individual pinnae are simple in shape, about 10cm long by 3cm wide, with bluntly serrate margins. Veins run free from the mid-vein to the edges. It is deep green and glossy on the upper side, lighter beneath. On fertile fronds sori are formed on the backs of pinnae along the veins,protected by a linear indusium similar to *A. australasicum* (bird's nest fern) but much smaller. Propagation can be achieved by the division of a developed crown, or from spores that are abundant and very viable. Sporelings are very slow developing so can be contained in small pots for quite some time before transfer to a bucket size container for full growth. Truly a strong healthy fern with a long life span.

(To be continued).

FERN-HUNTING IN NEW GUINEA

B S Parris Croxall

New Guinea is perhaps the richest country in the world for ferns as about 2000 species grow there (1 in 6 of the world's ferns) and the diversity of shape, size, colour and texture is really amazing. I have been very fortunate in having several extremely long-suffering friends living in different parts of Papua New Guinea, each conveniently close to good fern country and each by now expecting that soon after my arrival their well-kept houses will resemble the drying room of an herbarium. The useful custom of building houses on stilts with large porches and widely spaced floorboards means you can sort and press specimens outside and drop the extraneous soil and moss through the boards without completely messing up one's host's living room floor.

The eucalyptus savannah country around Port Moresby does not look at first sight like good fern country but amongst boulders and along the small streams grow the tough drought-resistant species such as *Cheilanthes tenuifolia, Doryopteris concolour* and *Schizaea dichotoma.*

The swamp forests at low altitudes are the least exciting fern habitat in New Guinea and their most interesting feature is the varied selection of large and beautiful Thelypteroid ferns which rapidly colonise track margins, such as *Sphaerostephanos polycarpus, Christella hispidula* and *Amphineuron ceramicum.* There are a few climbers such as *Lomariopsis kingii* upon the trees but ferns as a whole are not a dominant part of the vegetation.

The lowland forest at slightly higher elevations is everyone's idea of a true tropical rain-forest, with clear streams, palms, lianes, masses of filmy ferns on trunks and rocks, large perching ferns such as *Asplenium phyllitidis* and *Merinthosorus drynarioides,* some small tree-ferns, e.g. *Cyathea werneri,* and the *Bolbitis* species which are so characteristic of wet lowland forest in Southeast Asia. Large ground ferns such as *Callipteris prolifera* and the pan-tropic *Didymochlaena truncatula* abound,together with leeches and, of course, rain (well, you can't have rainforest without it.....). The obligatory afternoon thunderstorm provides no real problem as the rain is very warm and wet clothes dry out very quickly afterwards.

The fern constituents of the lower montane forest of the Highlands, at about 1500 m. alt., are rather different and do not give the same impression of lushness as the lower forests. Moderate-sized ferns such as *Arachniodes aristata, Dryopteris sparsa* and *Tectaria ferruginea* are common, while the epiphytes are smaller on the whole than those at lower altitudes and include *Pyrrosia fovealata, Elaphoglossum brunneum* and *Scyphularia pentaphylla.* The Highlands are densely populated and most flat to gently sloping land is cultivated for sweet potato and introduced European vegetables but fallow land is rapidly invaded by the local bracken, *Pteridium aquilinum* var. *wightianum,* and *Sphaerostephanos unitus.* The open roadside banks are covered by *Sphenomeris chinensis* (with bright red young fronds), several varieties of *Dicranopteris linearis,* a good selection of *Gleichenia* species including *G. venosa* and *G. longissima,* and in the grass swamps *Thelypteris confluens,* the southern relative of our *T. thelypteroides* subsp. *glabra.*

The local people are very friendly, especially towards European women who do not usually go walking around the countryside and who certainly never indulge in the socially extremely acceptable (by native standards) custom of gathering wayside greens for food. Several times I have been stopped by a group of the local women clad in bark belt, with fibre netting in front, arse-grass (greenery changed daily) behind, and strings of beads around neck and upper arms. They obviously highly approve of my collecting plants — obviously to feed my husband — in large polythene bags, which are themselves much utilised for a variety of purposes. They systematically finger through the fern trophies in the bag, each being greeted either with a sage nod and straight face (no doubt number one kaikai, or very good food) or with peals of laughter (nasty taste, furry texture or something worse?). Oh for a translation; it would be so interesting to find out the local uses of these ferns but we don't even have pidgin English in common.

At even higher altitudes, where cool night temperatures and the occasional frosts preclude cultivation of sweet potatoes, the most important item in the local diet, the midmontane forests are unbroken except for areas being logged. These forests have a rich fern flora, including various tree-ferns of the genera *Cyathea* and *Dicksonia*, many species of *Polystichum,* e.g. the delicate *P. bamleranum,* and mountain Thelypteroides such as *Coryphopteris fasciculata*. Some *Blechnum* species familiar from New Zealand, *B. fraseri* and *B. fluviatile,* grow together with that most odd link between the bipinnate *B. fraseri* and the more normal Blechnums, *B. rosenstockii,* which like *B. fraseri* is a miniature tree-fern on a stem 1-2 feet high and less than an inch in diameter. The trees are hung with an incredible variety of *Asplenium,* e.g. *A. incisodentatum* and *A. brassii,* my own special family, the *Grammitidaceae,* and the filmy ferns both large and small, which are such a feature of the forests of the wet tropics.

The forests at the highest altitudes are usually on the sides of valleys, with grassland in the valley bottoms. The forests have a similar but less diverse fern flora than those lower down, and a few surprises such as *Asplenium trichomanes.* The grassland/forest margin supports a rather specialised fern flora often dominated by treeferns such as *Cyathea aenifolia,* growing with *Gleichenia* e.g. *G. bolanica, Blechnum revolutum* and its look-alike, *Plagiogyria papuana.* In the grasslands are the most spectacular fern sights in the country — the tree-ferns, all with thick trunks to protect against frost and the fires which sometimes sweep through the valley. Sometimes they may be very common and can support quite a lot of plant life on their trunks, including small *Dendrobium* orchids with brightly coloured flowers of red, yellow and orange and several coriaceous-fronded ferns such as

Elaphoglossum angustatum and *Grammitis frigida.* It is interesting to note that most of these epiphytes are on the west side of the trunk; the explanation for this seems to be that the mornings are often sunny, thus drying out the eastern side of the trunk, but by midday the sky has usually clouded over completely and it may well be raining, so that the western side never gets exposed to the full force of the sun's rays. These tree-ferns are such an impressive sight that they are well worth the wet muddy climb up through the montane forests.

Each visit to New Guinea ends with plans for the next one being made to visit different areas and other mountains. The fern flora is so rich and the distribution of many species so sporadic that it is impossible to predict what choice specimens one may find next time; it is what makes fern hunting in New Guinea truly addictive.

AMERICAN MISCELLANEA

Ethelyn C. Williams
New York

Trips to England are always full of interest, and last year's was no exception, when, in addition to visiting friends in England, we joined the BPS for several days in Criccieth, North Wales. Everything was outstanding — the scenery, the leadership and the company — complete with knowledge and humour. *Hymenophyllum wilsonii, Asplenium marinum* and *Asplenium billottii* were added with pleasure to my Life List.

Since our last trip with the BPS in 1976, an exchange of spores has been going on which has resulted in many plants of *Osmunda regalis 'Cristata'* and *O.r. 'crispa'* now growing in our own garden. In addition we have been able to distribute plants to the New York Botanical Garden and the Cary Arboretum (the research field station of the New York Botanical Garden at Milbrook, New York), and the gardens of many members of the American Fern Society, New York Chapter. John Wilks-Jones of Conway undertook to send me spores, gametophytes and sporophytes, and did it so skillfully that even after the eight to ten-day trip, everything lived and grew to the extent that in the end I couldn't give any more of the plants away. I planted the spores at weekly intervals until after about 3 months I ran out of them. Germination and growth were good all along.

In the spring of 1977, I sent John spores of *Osmunda claytoniana* and *O. cinnamomea* which germinated successfully at his end. The same spores were sent to BPS spore bank but unfortunately they arrived mouldy.

Also in 1976 we had made the acquaintance of Fred Jackson and Reginald Kaye. I sent them spores of American North-east ferns which they wanted, and in return, Reginald Kaye sent spores of 14 varieties of polystichum in which I was interested. Plants from these spores are now growing in our fern garden, the Botanical Garden and in other gardens as well. They were raised in our greenhouse, planted out in their second year and mulched deeply with pine needles when the ground froze in January.

The 1978-79 winter, on the whole, was slightly milder than usual except for the month of February which made the papers in Europe. The snow helped the plants, at least! Every fern survived with no damage. Even some *Ceterach officinarum* which I had planted directly in the ground survived. All of this speaks well for the hardiness of these British ferns in this area, although it remains to be seen what a long, intensely cold, snowless winter would do.

In exchange for spores of varieties of British *Phyllitis scolopendrium,* I have sent spores of our Eastern hardy ferns to Alfred Hoare. Bert Bruty was interested in some of the fancy cultivars of nephrolepis that have been developed in this country, and some of these will be coming his way in the form of small plants.

There is great interest in British ferns in the American Fern Society. Any such plants that appear on the sale or raffle tables at our monthly meetings are quickly snapped up.

We do enjoy our membership in BPS. It is good to see old friends and to make new ones when we come over, and we are looking forward to joining the Society on another trip sometime.

ATHYRIUM FILIX-FEMINA 'VICTORIAE'

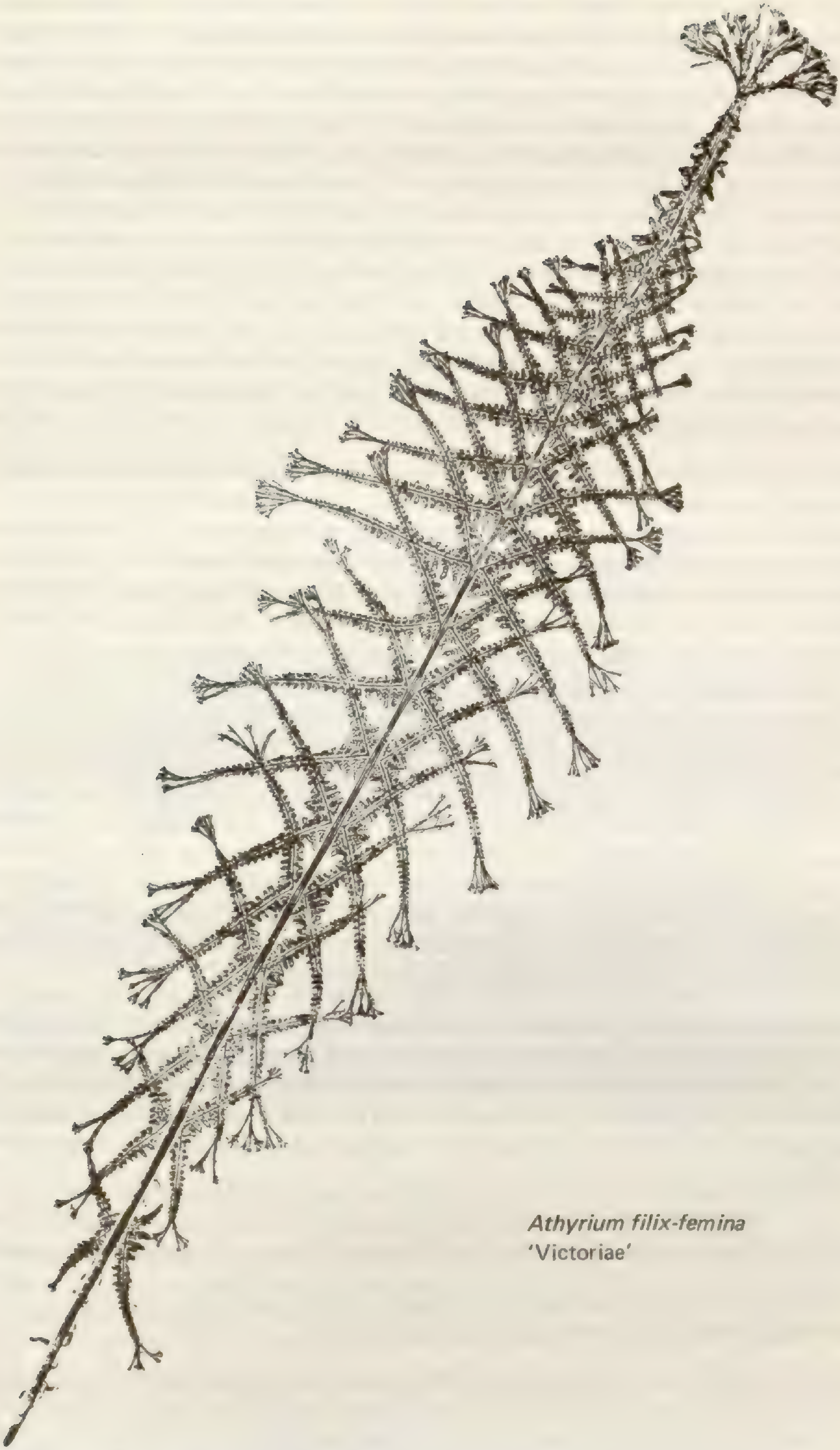
J. W. Dyce

Athyrium filix-femina 'Victoriae' is one of the most remarkable fern variety wild finds ever made. It is absolutely unique, and no fern has every been found anywhere in the world which can approach its extraordinary design. Completely symetrical in every way throughout its elaborate build-up, it is a *percruciatum* in which not only the pinnae but also the pinnules are perfectly cruciate. Only one plant has ever been found and it is one of the most beautiful of British fern varieties; not even the finest of the *Polystichum setiferum* varieties can surpass it in perfection.

The fronds, in the original, are narrow and up to 3 feet or even nearly 4 feet long. They taper at both bottom and top, exceptionally so at the top before branching out into a beautifully divided tassel-like crest. They are thoroughly cruciate or cross-forming. The pinnae are also long and slender and, like the frond tips, they end in long, many-stranded, pendulous tassels. Here I quote that master of description, Druery, who writes — "The marvel is that these side divisions are not set on singly at nearly right angles to the stalk, as in most ferns, but are set on in pairs at right angles to each other, and as each pair has its fellow pair on the opposite side of the midrib, the two form a cross, and, of course, the two rows from end to end of the frond form a delicate lattice-work bearing two rows of charming tassels." The illustration shows this clearly. Dr Edwin F. Fox, of Fox and Jones the noted fern breeders of the last century, explains the development as — "abortion of the secondary rachis at the first pair of pinnules, then an abnormal development of the first pair into what is really a tertiary rachis, upwards and downwards and away from the primary rachis, so as to cross the similarly developed pinnules above and below them."

It is interesting to note that none of the early descriptions brings out an important feature, that the doubled pinnae are not in one plane but are set on to the primary rachis at a twisted angle, so that one of each pair grows forward and upward and the other backward and downward, giving a 3-D effect. Not only do we see two rows of crosses when we look down on the frond, but when we hold the frond up to the eye and look along the midrib we see another series, one behind the other. This character is lost completely, of course, when fronds are pressed in the herbarium, and it is one which adds immensely to the delicacy and charm of the fern.

An important fact has to be emphasised — the fern is a *percruciatum,* that is, not only are the pinnae cruciate, but the pinnules are as well. My authority is Druery who was very familiar with the "real" thing and states — "On close examination it is seen that even the smaller sub-divisions are set on in pairs in like fashion, so that the pinnae are formed of tiny crosses too." This character is very much overlooked by most present-day growers, and most of the specimens seen, although beautiful symmetrical plants, have normal



Athyrium filix-femina
'Victoriae'

pinnules, and even, in some cases, depauperate ones, and are obviously, in spite of claims made, NOT the true original. This has most probably been brought about by the fact that the fern comes "true" from spores, and it may be that first generation progeny *do* come true, and the deterioration sets in with subsequent generations. Anyhow, the percruciate character in itself is not sufficient to support a claim that a plant is part of the original stock. All spore sowings will produce at least some *percruciatums,* and I very much doubt if there are many — if any — true original offsets still in cultivation. It is a well-known fact that none of its progeny achieves the height (up to 4 feet) of the original *A. filix-femina* 'Victoriae' and I would hesitate to confidently label any plant I have ever seen as part of the original find. My own best plant, now long deceased, which came to me in a direct line, straight from the old authorities, was, I am sure, not part of the original as it was stated to be (it was not tall enough, and there was a degree of depauperation in the pinnules, some being doubled, some partly so and some not at all). It would seem therefore that even those old experts slipped up at times and, no doubt, were mixing up progeny with the original.

This fern was found in Scotland in 1861 by James Cosh, a student from Edinburgh, who on clambering over a stone dyke in a country road near Drymen in Stirlingshire, almost jumped on it. Although not a fern man, he appreciated its worth and a day or two later (not two years as given in some accounts) he collected the plant, a fair sized specimen with several crowns, one of which was given to nearby Buchanan Castle (presumably to the gardener) and the others were distributed among friends in Edinburgh. Druery visited the spot 35 years later accompanied by Mr Crosbie, the gardener at the Castle. They were joined, most fortunately, by Mr Buchanan, a local farmer who happened to be cutting the roadside grass at the time of the find, and who had been asked by Mr Cosh to take care and not cut the fern down. Druery was able to make a search of the area but found not even a single lady fern near the site of the find. At Buchanan Castle he saw two grand specimens of the original, and it is interesting to note that plants of *A. filix-femina* 'Victoriae', said to be offsets from the original plant, can still be purchased there. By the kindness of our member William Duncan of Durie Estate, Leven, Fifeshire, I acquired about two years ago a crown from his plant which came from Buchanan Castle. It is growing well with me but is still young, and it is too early for me to make any definite statement about it. It has the 3-D character very well developed, but I suspect it will turn out to be progeny and not the original — I am not too happy about the pinnule shape.

Druery tells the story of an enterprising nurseryman who expressed a strong wish to have an "impression" of a frond from such a unique fern and sent some gummed paper for the purpose. Unsuspectingly, his wish was granted and the spores adhering to the gummed paper were not long in forming a marketable stock! So, right from the start this accommodating habit of 'Victoriae' in producing true progeny was seized on and full use was made of it.

THE FERNS OF ROSSDOHAN, Co. KERRY, EIRE

Waldy Pierozynski

In the summer of 1979 during a holiday in Eire, I had the opportunity of visiting Rossdohan, a garden in Co. Kerry famed for its tree ferns.

Along the whole of the south-west coast of Eire, mainly in Co. Kerry and Co. Cork there exist many gardens where Australasian tree ferns have been planted out and now thrive in the mild almost totally frost-free maritime climate. Rossdohan Island, to give it its full name, is only technically an island, being in fact a promontory jutting out into the Kenmare River bay. This bay, in fact, contains other small islands and promontories such as Garinish and Dinish Islands, now mostly private estates, where numerous tree ferns have also been planted.

Some visitors to Rossdohan have been heard to comment that the garden is not a garden at all but more like a jungle! Indeed, wandering through the grounds one gets the impression of a subtropical forest somewhere in the southern hemisphere, and to me, this was the essential attraction of the place. Edward Hyams, in his book, "Irish Gardens," even goes so far as to say "had Adam been created south of the Equator then this, perhaps, is what paradise would have looked like." It is therefore all the more remarkable that 110 years ago, when the island was bought by its first owner Samuel Heard, it was a windswept treeless peat-covered rock. Heard followed the example of Augustus Smith of Tresco in the Scilly Isles in planting windbreaks of pine and rhododendron and then set about the task of importing and planting exotic plants from Australasia, South America, South Africa, China and Japan. The present owners Mr. P. Walker, his wife and his brother R. J. Walker, bought Rossdohan in 1955 after the garden had gone through a period of neglect,and spent considerable time and effort clearing fallen trees and planting new windbreaks (especially after the very severe gales of 1957 destroyed a large proportion of Heard's original windbreaks) and generally restoring Rossdohan to its former glory.

During my visit, I was kindly guided round the garden by Mrs. Ruth Walker who pointed out the most interesting features of the garden. From the point of view of ferns, the most striking aspect of the garden is that ferns are everywhere — both native and exotic. The shade afforded by huge trees of eucalyptus, acacia, olearia, callistemon and other foreign and European genera, coupled with the cool moist climate, makes for luxuriant fern growth.

As I stated earlier Rossdohan is renowned for its tree ferns. *Dicksonia antarctica* with trunks up to 10 feet in height and fronds 15 feet in length has been planted throughout the garden either individually or in impressive stands. Sporelings of this fern occur everywhere and are regarded almost as weeds! However, what has made Rossdohan truly famous is the presence of a much more rarely cultivated tree fern, namely *Cyathea dealbata,* or the Silver Tree Fern. To my knowledge, Rossdohan is the only place in the British Isles where this tree fern flourishes outdoors in such numbers and to such proportions. The cyatheas of Rossdohan have trunks to 8 feet in height and fronds over 10 feet in length. From a distance they resemble *D. antarctica.* On closer examination, however, the silver-blue colouration of the underside of the fronds which gives this fern its name, is unmistakable. Another distinguishing feature, easily visible on the large fertile fronds of the Rossdohan plants, is that the cyathea has sori situated away from the pinnule margin while the dicksonia has marginal sori. In addition, the cyathea has both hairs and scales, whereas the dicksonia has hairs only. Interestingly, although the fronds of the cyatheas are fully fertile, sporelings are much rarer than those of the dicksonias. It may be that they are of slower growth and are "choked" out by competition with other plants/ferns.

One of the most fascinating parts of the garden is a "fern-gully" dominated by five different species of exotic ferns. At the top and bottom of the gully grow magnificent specimens of both dicksonia and cyathea. The slopes of the gully on the other hand are covered in masses of large plants of *Woodwardia radicans* which are clearly spreading vegetatively by means of the distal bud on the end of each frond. Nearby on some sloping banks are huge colonies of *Blechnum magellanicum,* sometimes erroneously called *B. tabulare* in England, which have spread rapidly by means of underground runners. (The true *B. tabulare* of S. Africa has a different frond morphology and an upright caudex like a small tree fern). These colonies are truly impressive with many new fronds of a brilliant copper-red colour to about 3 feet in height, above which stand the more erect and narrower but longer fertile fronds. To add to this scene of subtropical luxuriance several of the trees in the vicinity of the gully are festooned to a height of about 20 feet with the epiphytic fern *Microsorium diversifolium.* This polypodium-like fern has rapidly spread over the trunks of the trees by means of its thick fleshy green rhizomes, having originally been planted on the ground. Immature fronds from this fern are simple and entire and contrast sharply with the larger and pinnatifid form of the mature fronds.

In a particularly damp and shaded part of the garden, the Walkers have recently planted a New Zealand filmy fern, a species of either hymenophyllum or mecodium. Although filmy ferns are notoriously slow to establish, the fern here appears to be very happy in its new location and is flourishing. Nearby in a boggy area was that familiar "foreigner", *Onoclea sensibilis,* which again was a recent planting.

Of the native ferns, *Asplenium scolopendrium, A. marinum, Athyrium filix-femina, Blechnum spicant, Dryopteris filix-mas* and *Polypodium vulgare* were common. Although *P. australe* is common in Co. Kerry, especially near Killarney where I found the varieties 'Serratum' and a form close to 'Semilacerum' it appears to be missing from Rossdohan. Elsewhere several plants of the 'Divisilobum' varieties of *Polystichum setiferum* have been planted and are now growing to luxuriant proportions. None of the British filmy-ferns were present, however, which is surprising since there are good habitats for them on Rossdohan. Both the hymenophyllum species are generally common in Co. Kerry and Killarney is of course the classic locality for *Trichomanes speciosum.* These ferns would, I feel, grow particularly well on Rossdohan and would be worth acquiring.

The Walkers are interested in obtaining more species of ferns and since my visit I have sent them several hardy foreign ferns, namely, *Microsorium scandens* (an epiphyte similar to *M. diversifolium*) and *Blechnum penna-marina* and *B. alpica.*

To anyone interested in ferns, Rossdohan is a fascinating and awe-inspiring place and a visit (by prior arrangement) is well worthwhile. If one wishes to see tree-ferns and other semi-hardy exotic ferns grown to perfection outdoors then Rossdohan is the place to go.

THE REVENGE OF DR WALLICH

Richard Rush

In common with — I think it may fairly be said — many members I'm apt, given half a chance, to pronounce on the identity of ferns seen during BPS meetings (and still more so when in the company of non-enthusiasts) with unwarranted alacrity. My confidence tends to fade with the day, and as soon as I'm home I pore through my books in order to see whether I was probably correct — few things are so gratifying as to find oneself a justified know-all — or whether to blush. It's not a sin of which I alone am guilty, nor, indeed, am I alone in sometimes being woefully wrong; fern meetings would be dull affairs if no-one dared venture any opinions; and anything which drives one back to check on the facts cannot be altogether reprehensible.

It was as I was still parading through my collection with a distinctly authoritative gait, having only the previous day given some proof of knowing something about ferns by having identified, I believe correctly, a couple of foreign species, that my wife, who professes to be a pteridological bystander rather than a full initiate, pointed out that my plant of *Dryopteris wallichiana* is (a) not that at all, and (b) is probably *D. erythrosora.* Finding that she is probably right on both points, I rather weakly defended myself with the argument that my willingness to believe that juvenile plants, which usually look little like mature plants, will eventually develop as promised, only shows that I am prepared to trust in and learn from the plants I grow. After all there are few enough touchstones. The ferns in collections open to the public and the illustrations in fern books are not always correctly named. The best way of becoming familiar with ferns is often to acquire and grow them, and if one has only seen mature plants of a species, and photographs of mature specimens of it, one is not in a strong position to state categorically that they could not be strangely different when young.

If, even so, I was not deservedly humbled, I can plead that I only obtained the plant last year and so had never previously seen the highly coloured fronds, which are such a feature of *D. erythrosora* (though, it might be noted, it is not unique among Asian dryopteris in having notably colourful young fronds), but, of course, I should have seen that it was not *D. wallichiana* by the shape of the fronds.

What was most chastening, however, and what might have made me more than usually gullible (when I have otherwise learned to be sceptical about the labels attached to ferns), was that I was once again thwarted in my attempts to obtain *D. wallichiana.*

When I became — almost overnight — interested in ferns, this was one of the first species which took my attention. I couldn't find a source of plants, but my first experimental spore sowing being encouragingly successful, I obtained spores of the species, sowed them, and was very pleased to observe the development of a thick carpet of prothalli, and, almost as soon as that was thinned, the smooth progress to tiny uncurling fronds. Time passed and I became increasingly enthralled by the prospect that the two or three trays of light green young ferns, of such delicate appearance, which I now had would slowly metamorphose into sufficient plants of *D. wallichiana* to fill a field. Their tardiness in doing so eventually forced me to look at them for what they were — *Gymnocarpium dryopteris* — rather than at the name under which I had obtained the spores, and rather than at the vision of maturity I was imposing on them. The disappointment was only momentary, for why should one complain about being able to plant the Oak Fern en masse (even after giving some away)? I next obtained a plant of *D. wallichiana* from a reputable nursery, which, when it arrived, reminded me of those joke parcels which unkind children give to their relatives. It virtually required a magnifying glass to locate the specimen among more reasonably sized plants, and it proved to be of such tender years, in a literal sense, that it did not survive for long. Taking this to be an isolated lapse, I ordered another plant, which I took the precaution of growing on in a pot for a while until satisfied that it was in a fit condition to be planted out. This also perished fairly rapidly, and resisted all my attempts to revive it. Only when other plants — of undoubted vigour — had died in the same site did I realise that something foul had probably been poured away in that spot. To understand how probable that was you would need to be acquainted with the previous owner of that property: not many parents of young children, as he was, would leave bottles of spirits of salt, and unlabelled containers of other suspect substances, by the back door.

Few ferns, *D. wallichiana* not being in their number, are unfailingly available every year, but when it was next offered, by another reputable nursery, I yet again ordered it. Though I'd thought the prices a little high I was appreciative of the size and quality of the plants sent. Excepting for the *D. wallichiana*: I'd by then learned enough to be strongly of the opinion that a fern in every respect looking like a crested male fern would not develop into *D. wallichiana..* I sent it back and duly received a replacement.

And now I am persuaded that that too is not as labelled. That *D. wallichiana* is far from uncommon only makes it the more frustrating. If I am finally caught shinning over the wall of a well-known public garden with a garden fork between my teeth and a look of steely resolve in my eyes, I shall plead mitigating circumstances. Any additional charge of wilfully persisting in referring to the fern under an expunged name (the name has now been changed back to *D. paleacea*) does not, and cannot, divert me from my quest, which is to find the plant which belongs with the permanent label I have made out in the name *D. wallichiana.*

SOUTHPORT FLOWER SHOW 1980

J. W. Dyce

Southport has come and gone again and there was the usual fine presentation of good quality fern varieties on the show bench. I noted with regret, however, that there were many empty spaces and some classes were poorly supported; also, exhibitors were fewer in number. We all appreciate that exhibition plants are awkward to cart from a distance and transport costs heavy, but exhibitors in other plant classes seem to manage as well as ever. It would be a real tragedy for the fern cult if the fern section at Southport, the only one of its size in the country, were to fold up and I hope we shall continue to get a sufficient number of dedicated growers and exhibitors to avoid the possibility of this happening. A new exhibitor this year was Mr J Bromage, and although he was not a prize-winner we hope he will not be too discouraged to try again.

Going through the Schedule, in Class 9 for *Six Greenhouse Ferns* there were only two entries — surely this could be one class easy to support when so many people these days grow ferns indoors and in their greenhouses. Class 10 for *Three hardy British fern species — NOT varieties* was most disappointing. There was only one entry in this most easy of classes, introduced into the Schedule a few years ago, at our request, to encourage growers with no pretensions to knowledge of fern varieties. Another class with only one entry was for *Three Scolopendriums.* This fern is very hardy and easy to grow, and surely there are many growers who could put up an exhibit of three varieties. The class for *Three Polypodies* attracted only two entries — again an easy fern to show with plenty of available varieties to choose from, and this also applies to the class for *Three Polystichums* (two entries), *Three plants Gymnocarpium, Phegopteris and/or Thelypteris* (two entries), *Three Aspleniums* (two entries) and, surprisingly, the class for *Three Dryopteris* with only one entry.

The quality of the exhibits was very good this year. As usual, Noel Brookfield won our Society's Silver Challenge Trophy with a very good group, and Bob Trippitt won the Wilf Griffith Trophy for the highest number of points. The two Brookfields, Noel and his son Rodney, along with Bob Trippitt are the main supporters of the fern section at this Show — without their entries the section would, I am pretty certain, cease to exist. In my list of the prize-winners appended, note how often their names appear, and have done regularly over very many years.

There were several outstanding plants and of particular note were *Dryopteris pseudomas* 'Windermere', up to the standard of, if not better than, 'King of the Male Ferns' which was also on show, *Polystichum setiferum* 'Drueryi', *P. setiferum* 'Gracillimum', *Athyrium filix-femina* 'Drueryi' and *D. pseudomas* 'Angustata cristata Hayhurst'.

The prize-winners are listed below in order of winning—

Class 7 Group of hardy British ferns arranged naturally in an area not exceeding 100 square feet
J Brookfield and Son, R F Brookfield, W W Howarth (3 entries)

Class 8 Six hardy British ferns (dissimilar)
R Trippitt, R F Brookfield, J Brookfield and Son (3 entries)
Class 9 Six greenhouse ferns (dissimilar)
J Brookfield and Son, no second award (2 entries)
Class 10 Three hardy British ferns (species only, not varieties)
R Trippitt, no second or third awards (1 entry)
Class 11 Three foreign ferns, hardy in Great Britain
R Trippitt, J Brookfield and Sons, R F Brookfield (3 entries)
Class 12 Three scolopendriums
R Trippitt, no second or third awards (1 entry)
Class 13 Three polypodies
R Trippitt, J Brookfield and Sons (2 entries)
Class 14 Three polystichums
R Trippitt, J Brookfield and Sons (2 entries)
Class 15 Three athyriums
R Trippitt, R F Brookfield, J Brookfield and Sons (3 entries)
Class 16 Three dryopteris
R Trippitt, no second or third awards (1 entry)
Class 17 Three plants gymnocarpium, phegopteris and/or thelypteris
J Brookfield and Sons, no second award, R Trippitt (2 entries)
Class 18 Three aspleniums, excluding *Asplenium scolopendrium*
R Trippitt, B Russ (2 entries)
Class 19 One British fern
A R Busby, J Brookfield and Son, no third award (4 entries)
Class 20 One greenhouse fern
R F Brookfield, A R Busby, J Brookfield and Son (4 entries)

The British Pteridological Society Trophy – J Brookfield and Son.
The Wilf Griffiths Trophy – R Trippitt.

As usual, the Society had a Stand in the Societies' Tent, decorated with pot ferns and vases of fronds. An exhibit by the Secretary showed the development of fern plants from the spore onwards. The Stand is a "shop-window" for our Society and we regard it as an important part of our life. BUT, there seemed to be very little appreciation of this fact this year. The Stand was manned by the President and Secretary and for most of the three days we were entirely alone, tied to the Stand because we could not leave valuable book exhibits unattended, and able to leave it, one at a time, only for rare brief periods. We had the doughty assistance of Noel Brookfield and Bob Trippitt for part of the first and last days and we appreciated their support, but we had no one at all for the rest of the time although we had visits from several members – 13 in all during the Show. Looking around at the other stands we could see all of them well and fully manned by enthusiastic helpers, and it made us think! *May I appeal to those of you who trouble to read this report to consider giving up, say, half a day of your time next year to help us.* Half-a-dozen willing members volunteering for this duty each year would make a tremendous difference. Let Matt Busby or Jimmy Dyce know – they will both welcome you with open arms – even the ladies!!

FERNS OF IRELAND by Donal Synnott, illustrated by Harold Bird. No. 68 of the Irish Environmental Library Series. 32pp, 16 coloured plates, 240 x 166mm. Folens, Dublin, 1980. Price £1.00 post free from the author at the National Botanic Gardens, Glasnevin, Dublin 9.

This excellent little book is a must for all interested in ferns. The illustrations are some of the best I have seen; they are botanically correct, artistic in execution and have been well printed. The typography is clear and attractive.

The author has made a special study of the distribution of Irish ferns and reminds us that in the recent *Atlas of Ferns* there are many blank squares, even for the very common species like *Athryium filix-femina,* and that much more field work and recording is needed in Ireland. This is indeed so and although *Woodsia* spp., *Dryopteris expansa, Cystopteris montana* and *Isoetes hystrix* are not in Ireland all other species are there. But their detailed distribution is fascinating: why is the Limestone Fern *(Gymnocarpium robertianum)* only found at Headford on the Galway-Mayo border when limestone is so abundant? and why is the Oak Fern *(G. dryopteris)* much rarer than would be expected? Surely the Northern Buckler-fern *(D. expansa) is* in Ireland but many have searched for it and so far it has not been found although, *D. remota* a close relative, has been found at Dalystown, E. Galway and in Glen Flesk, Kerry in the earlier part of this century.

There is little to criticise in this book. There are no scales given on the plates but most are clear without them although the Beech Fern looks as massive as the Male Fern. Donal Synnott introduces a new common name 'Sweet Mountain Fern' for the Lemon-scented Fern which is a pity as we need standardisation in common-names as much as Latin names. I do seriously recommend this book before it goes out of print.

A C Jermy

CAPE PENINSULA FERNS by L. P. Roux. 66pp, 1979. Published and available from the National Botanic Gardens of South Africa, Kirstenbosch, Newlands, Cape Province, S.A. Price R.2.75 (about £1.50) (please remit in S.A. currency).

This is a well produced guide to the fern species of the Cape Peninsula, with line drawings and identification keys to all recognised species (56), by a horticulturist who has himself drawn the plates, most of which are very convincing. The text is clear, giving references to standard works, concise descriptions and a selected list of the few specimens examined. Hopefully this little book will encourage more local fern enthusiasts,and as many of the species mentioned are sold as houseplants in Western Europe it should have a good sale here.

A C Jermy

HEINEMANN GUIDE TO COMMON EPIPHYTIC FERNS OF MALAYSIA AND SINGAPORE by Audrey Piggott, 1979. Heinemann, Singapore. 32pp., 217 x 140mm, 32 coloured plates and 50 black and white photographs. Price about £1.30.

This book is a simple guide to the common epiphytic ferns of Malaysia and Singapore. A few introductory pages lead into the main section of the book where all the species covered are alphabetically arranged. Brief hints to aid recognition are given under each species along with notes on distribution and other miscellaneous information. For example, did you know that rats and snakes often make their homes in Stag's horn ferns? Fuller descriptive details are not necessary as all the 42 ferns listed are either illustrated in colour, or black and white, or both. These illustrations are the feature of the book and for the most part they are good. The colour plates particularly catch the eye, while the black and white photographs, though less attractive, each illustrate some diagnostic feature. A glossary and a useful section giving hints on the cultivation of epiphytic ferns complete the book.

This book contains relatively little of direct interest to gardeners in cold regions. Nevertheless it can be recommended as an item of general interest as well as a reasonably priced introduction to the tropical epiphytic ferns of South-east Asia.

M H Rickard

GARDENING WITH FERNS by Rex E Mabe, illustrations by R Gabriel, 1973. Potpourri Press, Greensboro, North Carolina U.S.A. 48pp. 215 x 138mm. 33 line drawings. No price shown.

I picked up several copies of this little paperback book in the U.S.A. this year for a "mere song". While written for the indoor plant lover, with simple instructions on the care of the ferns he includes in his collection, it contains some worthwhile information which can be of value to the more serious grower in this country. It reviews briefly how to grow and care for indoor ferns — American methods are sometimes very different from ours and can be thought-provoking. The various popular species and varieties are described at length, and include the bird's nest fern *(Asplenium nidus),* davallias, maidenhairs, pelleas, pterises and staghorns (platyceriums). One whole section is devoted to the nephrolepis species and cultivars. Hardy outdoor ferns have only three pages devoted to them.

I think this small book has possibly been "remaindered" by the publishers, which was why I was able to acquire the copies at 29 cents each. I am offering them to members through BPS Booksales at 50p a copy, and I think that members who buy a copy (I have only a limited stock) will not consider that their money has been entirely wasted.

J W Dyce

THE ABC OF FERNS AND PALMS edited by Beryl Guertner and published in magazine form by Good Gardening Magazine in Australia, 1979. Distributors: Gordon and Gotch (A/Asia) Ltd, Melbourne. Murray Publishers Pty Ltd., Sydney. 100pp, 271 x 211mm, 200 photos, 62 in colour and many whole-page. Price, paperback, Aust. $2.00, N.Z. $2.25.

A presentation copy of this magazine was sent to me by our Australian member Ray Best, and includes an article by him on the Pteris genus. The magazine is excellently produced with many articles, all profusely illustrated in colour, on top-class Australian ferns, brake ferns, maidenhair ferns, tree ferns and elk and staghorn ferns. Those of our members who grow palms — and there are some — will find much to interest them, combining palms and ferns.

For leisure reading in quiet moments with much good information thrown in, this publication, which may be classed as a "glossy" but without the usual deprecatory connotations — flashy and superficial — the word conjures up, makes a good addition to the fern book library and is well-worth £1.50, the price I am asking for it in BPS Booksales.

J W Dyce

GROWING FERNS, a beginner's guide to hardy ferns and their culture, by Ray Best, 1980. Bay Books, Sydney, Australia. In their Bay Books Australian Gardening Library, 80pp, 277x 209mm, 61 colour photos and 27 line drawings and diagrams. Price, paperback, Australian $3.95.

Correspondence with the Australian author had been whetting my appetite for more than a year and when at last the book was published,and a complimentary copy reached me it much more than exceeded my expectations. It is excellently written by a very knowledgeable grower of ferns and superbly illustrated. Not only does Ray know his ferns and can write about them but he is obviously a first-rate photographer and illustrator. His close-up photos of details of fronds and sori are masterly and his skilful drawings, all in colour, are precise and detailed.

Of course, the book is an Australian one, about ferns grown in that country, but – as the author states – outdoors in Australia can mean anything from the blistering heat of the desert to the alpine environment of the Snowy Mountains. This means there are Australian ferns for all climates, and many to suit this country. But the author obviously does not live in a cold area, as is very evident from some of the full-page photographs taken in his garden which must be almost a full-scale fern "jungle". This fern grower's paradise contains a fern grove with great massive-trunked tree ferns, shaded by tall eucalyptus. There are old gnarled trees with huge platyceriums growing on them, one in particular being an impressive specimen of *P. superbum,* with an equally large *P. bifurcatum* near it. Judging from his photographs, Ray's garden must be the perfect fern garden, the dream of all fern growers, and perhaps I am doing a disservice to British growers in recommending this book – it is going to make us all green with envy and extremely dissatisfied with our own ferning efforts!

However, I must leave the subject of Ray's garden and return my attention to his book which, I hasten to add, does not suffer in comparison. There is an introduction telling about ferns in general, aimed at the beginners for whom he has primarily written. This is followed by an A to Z list of hardy ferns easy to grow – in Australia! The Australian common names are included, which makes the list more interesting to the "foreigner", although some of them are similar to our common names. This section takes up 50 of the 80 pages and describes the ferns and necessary requirements for their successful culture. The following chapters deal with the growing of ferns successfully, both indoor and outdoor, with their special needs and their protection from disease, pests and damage and with necessary controls and treatments. The final chapter is on propagation, and the various methods, division of rhizomes, division of crowns, propagation by bulbils and growing from spores are discussed briefly. Few of the ferns mentioned may be suitable for out-of-doors in Britain, but the book will still appeal to all growers, not only those who concentrate on indoor ferns.

The lay-out and presentation are excellent although, personally, I am not too keen on the modern method of having very wide margins on the outer edges of the pages and using them for all chapter and section headings, for the captions to the photographs, and even for the occasional small photograph itself. But then, I am probably old-fashioned and have not moved with the times! It is good to see the book so well illustrated in colour – why is it that publishers in this country find the cost of including more than a few colour plates prohibitive, yet books reach me from America, the Continent, and far eastern countries well larded with colour while the cost seems minimal? I have only one cause for complaint – if I may use that word. I would like to see it in hard covers – paper covers smack too much of the magazine and its associated impermanence. There is nothing impermanent about the quality of this book and it deserves a more durable finish for a long life on the fern grower's working bookshelf. I appreciate that this will add to the cost but the book is well worth more than the price asked. It is available from BPS Booksales at £2.50.

J W Dyce

THE SOCIETY ARCHIVIST

Nigel Hall

The Society possesses a number of papers and other items relating to both the history of the Society and to popular interest in ferns. As time has gone by it has become more important that these materials and any others that the Society might acquire are conserved, catalogued and made available for consultation and study by members and students. At the November 1979 committee meeting I was appointed Society Archivist. It was not intended that the archivist should act as a custodian of materials, rather that materials should be lodged in a national reference collection where they would be accessible to all.

The Society archive material will only ever be a fraction of all the material relevant to the history of interest in ferns. However it ought to be possible for the archivist to act as a kind of registry of sources of information. It would clearly be useful if the archivist could know about any research being undertaken in this area. It might be possible for the archivist to assist with information or even link people with mutual interests. If you are studying some aspect of fern history please let me know.

There is no doubt that much historical material exists which could be collected for archive purposes. Do you know of photographs, slides, books, catalogues, articles, letters, herbaria, etc., that might be of use to the Society's archives? Do not think that this means 'old' items. Today is tomorrow's history. Items to do with recent fern history would be as welcome as those relating to more distant days.

It is clear that the attempt to build up and maintain such archive material cannot be the work of only one person. Success in this new enterprise will depend upon the support of as many members as possible. An archivist cannot read or collect everything. If you see or hear of anything of potential interest please do let me know. As archivist I would welcome ideas, suggestions or contributions. If there are any ways you feel I may be able to help you, please let me know. Our archive materials are part of our Society's heritage. It is up to the members of the Society to maintain and support that heritage.

THE PTERID

Ray Smith

(An observation on the behavioural pattern of a creature suspected of being allied to the species Homo).

The Pterid is a very strange being,
it walks around all day
looking at cracks in drystone walls
in a most peculiar way.

A Pterid's behaviour is very odd,
it carries plastic pouches
and fills them up, with all sorts of stuff
wherever it crawls and crouches.

A Pterid sometimes congregates
in glades and similar spots,
the occasions are quite rare of course
for it inevitably gets lost.

A Pterid is quite a thing to see,
it looks a very weird sight,
there's never two alike you see
and they're variable in height.

A Pterid can confuse at times,
it looks different aft from fore.
I wonder how it propagates,
I bet it grows from spores.

A Pterid must be happy though,
and it's surely very keen
or it wouldn't do the things it does
and the Filicopsida would rarely be seen.

REQUESTS

Mrs Rhonda White of 6 Coolson Court, Queen's Park North 6107, West Australia, has spores for exchange. Mrs White would particularly like to trade spores of *Asplenium lucidum* and *A. fulvum* for spores of other species and varieties of asplenium.

Jimmy Dyce and Martin Rickard are compiling a catalogue of polypodium varieties with a view to preparing an account of variation within the *Polypodium vulgare agg.* for eventual publication in the Bulletin or Gazette. It is hoped to build up a full picture of past and present forms and it would therefore be appreciated if as many members as possible could send a single representative frond from each polypody they grow to either Jimmy or Martin (addresses inside front cover). If the varietal name is known, or suspected, that too would be welcome along with the location of any other polypodium collection.

(Any member with requests for co-operation, plants or specific spores etc, is invited to make use of this section in future Bulletins. Ed.)

THE AMERICAN FERN SOCIETY, INC.

wishes to extend an invitation to readers of this Bulletin to join the American Fern Society. Regular members receive the "Fiddlehead Forum" six times a year. This newsletter is published for the benefit of those who are interested in growing ferns, hunting for them, and expanding their general knowledge of ferns. Journal members receive, in addition to "Fiddlehead Forum", the scientific quarterly "American Fern Journal". Membership costs $5.00 and $8.00 per annum, respectively. For particulars, please write to Dr J E Skog, Dept. of Biology, Geo. Mason University, Fairfax, VA 22030, U.S.A. Prospective members residing in Great Britain should write to Nigel Hall, 3 Sydney Road, Bramhall, Stockport, Cheshire SK7 1NH. (see separate note opposite – Ed).

MRS J K MARSTON
Specialist Fern Grower,
Culag, Green Lane, Nafferton, Nr. Driffield, East Yorks.
A new fern nursery, send two ten pence stamps for first list.

J BARNETT
1 Mill Cottages, Skyreholme, Appletreewick, Skipton, Yorks.
A wide range of hardy British and foreign hardy ferns stocked.
Please send a stamped addressed envelope for price list.

JACKAMOOR'S HARDY PLANT FARM LTD.
Theobalds Park Road, Crews Hill, Enfield, Middlesex EN2 9BG
Tel: 01-363 4278
Hardy ferns, unusual hardy herbaceous plants, shade and moisture loving perennials.
Send 15p stamp for list.

A NEW SERVICE FOR MEMBERS

Nigel Hall

The BPS has agreed to act as an agent for the American Fern Society. The advantage for members of the BPS is that if they wish to join the AFS they can do so simply by paying in sterling to the BPS. This avoids problems with overseas correspondence and overseas money drafts, which are usually very expensive.

The AFS offers particularly good value for money. Each year a member receives six issues of 'Fiddlehead Forum' and four issues of their journal. All this for eight dollars a year, at the time of writing about £3.50.

If you are interested in joining the AFS or would like further information about it please send a stamped, addressed envelope to:–

Nigel Hall, 3 Sydney Road, Bramhall, Stockport, Cheshire SK7 1NH

Please make sure it arrives by the 31st December as, if you want to join, subscriptions will have to be received by the BPS by 31st January.

The AFS is going to reciprocate with a similar scheme. It is to be hoped that both societies will attract more members as a result and that it will further consolidate the already good relations that exist between them.

MEMBERSHIP LIST – Additions and Amendments

FULL MEMBERS AND SUBSCRIBERS – New

ADAMSON Miss Colette, 41 Woodend Road, Alloway, Ayr KA7 4QD.
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SHARP J R, Hollands House, Drigg, Holmrook, Cumbria.
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JENSEN Mrs E C

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ZETTERLUND Henrik, Lilla Änggården, S-41307 Gothenburg, Sweden.

Members receiving Bulletin Only

KNOX Miss Charlotte, 123 Middleton Road, London E8 4LL.
TETLEY Miss M Isobel, Hollow Oak Nursing Home, Haverthwaite, Ulverston, Cumbria.

CHANGES OF NAME AND OTHER CHANGES

DELETE –	CLARK Miss Gunilla	Re-insert as –	HAILES Mrs. E Gunilla
	GATEHOUSE R A		GATEHOUSE R
	RIEMER Dr Martin		REIMER Martin (delete Dr)
	ROSCHER Dr Helga		ROSCHER Dr Helge
	VILLARET Prof Dr Pierre		MUSEE BOTANIQUE CANTONAL (address unchanged)
	WASH Thomas R		See – Central California Fern Production Nursery in *Bulletin Only* list.

MARRIAGES AND BIRTHS

We are happy to make the following announcements–

Marriages: Miss Josephine Barker – now Mrs Josephine Basil
Miss Gunilla Clark – now Mrs E Gunilla Hailes

Births: To Christopher and Mary Potts – a son, Joseph Mark, on 5 March 1980.

MEETINGS PROGRAMME 1981

Meetings Secretary	A J Worland, 102 Queens Close, Harston, Cambs. CB2 5QN.
Meetings Committee	A R Busby, J A Crabbe, J W Dyce, M H Rickard, J R Woodhams.
Saturday 14 February	Indoor Meeting at the British Museum (Natural History), Cromwell Road, London SW7 5BD at 2.00 pm.
Saturday 14 February	Annual General Meeting to be held at the British Museum (Natural History), Cromwell Road, London SW7 5BD at 2.15 pm.
Saturday 16 May	Visit to the Fern Houses and outside fern borders at Kew Botanic Gardens. Meet outside Fern Houses at 2.30 pm.
Thursday/Monday 11/15 June	Long Weekend Meeting in South-west Wales. **Leader:** Jimmy Dyce **Centre:** Emlyn Arms Hotel, Newcastle Emlyn, Dyfed.
Friday/Sunday 26/28 June	Weekend Meeting in Yorkshire. **Leader:** Nick Hards **Centre:** Plough Inn, Wigglesworth, North Yorks.
Saturday 11 July	Visit to Savill Gardens, Windsor Great Park, Berks. Meet at Main Entrance at 2.00 pm. **Leader:** John Bond
Friday/Sunday	Weekend Meeting in Silverdale, Lancs. **Leader:** Jimmy Dyce **Centre:** Silverdale Hotel, Silverdale, Carnforth, Lancs.
Wednesday/Wed. 22/29 July	Ferns and their Allies. Course at Kindrogan Field Centre, Enochdu, Blairgowrie, Perthshire PH 10 7PG. **Tutor:** C. Page, PhD.
Saturday/Saturday 1/8 August	Week Meeting at Chard, Somerset. **Leader:** Jimmy Dyce **Centre:** The George Hotel, Chard, Somerset.
Thursday/Saturday 20/22 August	Southport Flower Show. Many fern classes. Visit the Society's Stand in the Societies' Tent.
Saturday 12 September	Visit to Jackamoor's Hardy Plant Farm, Enfield, Middlesex. Meet at Main Entrance at 2.00 pm.
Saturday 7 November	Indoor Meeting at Chelsea Physic Garden, Royal Hospital Road, London SW3 at 2.00 pm.

REGIONAL DAY MEETINGS

Suitable dates will be arranged by direct personal contact with Organisers –

South-west England: Christopher and Mary Potts, 4 Kennel Lane, Webbington, near Axbridge, Somerset. Tel: 093 472 545.

West Midlands: A R Busby, 42 Lewisham Road, Smethwick, Warley, West Midlands. Tel: 021 558 4481.

North-west England: Nigel Hall, 3 Sydney Road, Bramhall, Stockport, Cheshire. Tel: 061 440 8986.

South-east Scotland: Michael M Scott, 24 Gardner's Crescent, Edinburgh EH3 8DE. Tel: 031 229 8435.

Members who would like to receive their Regional Meetings programme should apply to the Organiser, **enclosing a stamped addressed envelope.**

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THE NIPPON FERNIST CLUB

There exists in Japan this large and active Society devoted to the study of ferns which welcomes contact with foreign pteridologists, both amateur and professional.

For further information write to:

Dept of Forest Botany,
Faculty of Agriculture, Tokyo University, Hongo,
Bunkyo-ku, Tokyo, Japan 113.

1981 SOUTHPORT FLOWER SHOW

The Organisers extend all good wishes for a successful 1981.

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*

20th, 21st, 22nd AUGUST 1981

Schedules and further information from:

The Flower Show Secretary
Dept 11, Town Hall, Lord Street, Southport, Merseyside PR8 1DA

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THE BRITISH PTERIDOLOGICAL SOCIETY

BULLETIN

edited by
M H RICKARD

MISSOURI BOTANICAL
FEB 2 1982

VOLUME TWO NUMBER THREE
1981

THE BRITISH PTERIDOLOGICAL SOCIETY

Officers and Committee for 1981

President James W. Dyce, *46 Sedley Rise, Loughton, Essex, 1G10 1LT.*

Vice Presidents R.E. Holttum, F. Jackson, R. Kaye, Irene Manton, S. Walker.

Honorary General Secretary and British Fern Distribution Recorder A.R. Busby, *42 Lewisham Road, Smethwick, Warley, West Midlands B66 2BS Tel: 021-558 4481*

Treasurer Dr. B.A. Thomas, *Biological Sciences Department, University of London, Goldsmiths' College, New Cross, London SE14 6NW*

Membership Secretary Lt. Col. P.G. Coke, *Robin Hill, Stinchcombe, Dursley, Gloucestershire*

Meetings Secretary A.J. Worland, *102 Queens Close, Harston, Cambridgeshire, CB2 5QN*

Editors:
Fern Gazette Dr. C.N. Page, *Royal Botanic Garden, Edinburgh EH3 5LR*
assisted by J.A. Crabbe, J.W. Grimes, A.C. Jermy.
Bulletin M.H. Rickard, *The Old Rectory, Leinthall Starkes, Ludlow, Shrops SY8 2HP*

Spore Exchange Organiser R.F. Cartwright, *13 Perry Mill Road, Peopleton, Pershore, Worcestershire*

Archivist N.A. Hall, *3 Sydney Road, Bramhall, Stockport, Cheshire SK7 1NH*

Committee J.A. Crabbe, J.K. Cramp, Barbara S. Croxall, R.J. Edwards, Mary Gibby, J.W. Grimes, N.A. Hall, Gwladys Tonge, S.L. Williams, J.R. Woodhams

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The *Fern Gazette* and the *Bulletin* are the journals of the British Pteridological Society, published annually. The Gazette publishes matter chiefly of specialist interest on international pteridology, the Bulletin topics of more general appeal.

The BRITISH PTERIDOLOGICAL SOCIETY was founded in 1891 and today continues as a focus for fern enthusiasts. It provides a wide range of information about ferns through the medium of its publications and available literature. It also organises formal talks, informal discussions, field meetings, garden visits, searches for rare fern books, plant exchanges and a spore-exchange scheme. The Society has a wide membership which includes gardeners, nurserymen and botanists, both amateur and professional, in Britain and overseas. Articles for the Society's publications are received from, and reflect the interests of, Society members.

Membership is open to all interested in ferns and fern-allies, worldwide. Subscription rates (due on 1st January each year) are: Full Personal Members £7; Personal members not receiving the Fern Gazette £5; Student Members (full-time students under the age of 25) £5; Subscribing Institutions £8. Applications for membership should be sent to the Membership Secretary (address above), from whom further details can be obtained. (Remittances made in currencies other than Sterling are £0.50 extra, to cover bank conversion charges.)

The British Pteridological Society is affiliated to the Royal Horticultural Society

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Back numbers of the *Gazette* and *Bulletin* are available for purchase from the President (address above), from whom further details can be obtained.

THE

BULLETIN

OF THE

BRITISH PTERIDOLOGICAL SOCIETY

Vol 2 1981 No 3

EDITORIAL

The response to my pleas for more material for the *Bulletin* has not been in vain. In fact the number of articles and notes received has been such that I have had to increase the number of pages this year, while still not being able to include all articles sent in. I apologise to those disappointed authors, but I hope to include their contributions, where relevant, in the next issue. In the meantime keep those articles coming. To ease the editorial task, which always seems to be very much a last minute one, please try and get articles to me by June 30th and notes by August 31st at the latest.

Last year there were several mentions of *Dryopteris X tavelii* in the Meetings Reports. It has since been pointed out that it is likely that one of the subspecies of *Dryopteris affinis* was intended in some cases. At best therefore these records should be treated with caution. Hopefully one or two notes included in this issue will begin to clarify this problem area.

PRESIDENTIAL NOTES

At the next Annual General Meeting in February 1982 I shall retire from the Presidency of the Society. I have very mixed feelings as I think of this, although in some ways it will be good to be freed of all responsibility in the running of our affairs, and I *should* have more time to devote to other interests. On the other hand, the Society has really been my life for so many years that it will feel very strange not to be at the helm, a position I have occupied since the last War – at first, as Treasurer, quietly in the background giving support to my senior Officers, P Greenfield and E A Elliot, neither of whom were too robust in health, and relieving them of many of their more onerous duties. On the death of Elliot in 1959 I added the Secretaryship to my other jobs, and with Clive Jermy as Editor of the *British Fern Gazette* (the word *British* was dropped many years later) we gradually began to build up the Society in numbers and prestige, so that I was kept very fully occupied in all my leisure time. Then, in 1966, when I retired from business, I was able to devote myself much more fully to its affairs. Our annual Meetings Programme was greatly expanded from one solitary meeting per year, the secretarial annual *Newsletter* developed into a second journal, later to become the *Bulletin*, and what began as the purchase of the odd old fern book to pass on to other members increased to become BPS Booksales. I was able to devote more time to correspondence with members scattered all over the world in an endeavour to compensate them in some way for what they missed by being so far removed from us – this correspondence has now reached voluminous proportions with the multitude of *friends*, not just *members*, I have made in so many countries. This has been one of the great bonuses my work for the Society has brought me. My only regret is that so often I feel such a poor correspondent because the demands on my time have become such that long periods can elapse before the reply to a letter, resting in mute appeal on the top of my pile of correspondence, is despatched.

In recent years I have gradually divested myself of my various duties. Barry Thomas took over the Treasureship, Tony Worland became Meetings Secretary, Philip Coke was appointed Membership Secretary and Matt Busby relieved me of the General Secretaryship.

Lastly, we were able to prevail on Martin Rickard to take over the Editorship of the *Bulletin.* Now I have to relinquish my last Office as your President, after my stint of three years in the Office. Still left in my hands is BPS Booksales and the responsibility for the distribution of our journals, but these I must now plan to hand over in the near future.

All of it has been very much a labour of love, which has given me much satisfaction for over 30 years, but to me, as with all of us when the time comes, advancing years now dictate that a new generation has to take over. I go happy in the thought that I am leaving the Society in good hands — we have been more than fortunate in getting the right people for the right jobs in the direction of the Society and in the editing of our journals. I have done my bit over the years, I am leaving a good vigorous Society behind me — it is in excellent hands, and long may it continue to flourish and increase in repute widely in the world of ferns, both in the botanical and horticultural fields.

SECRETARIAL NOTES

A R Busby

MEETINGS — Meetings cards for 1982 are enclosed with this Bulletin to all inland members. Overseas members, visiting Britain, can obtain them on application to the Meetings Secretary.

PUBLICATIONS BY AIRMAIL — Our journals can be sent by airmail to overseas members, provided they advise the Membership Secretary and pay an additional subscription to cover airmail postage. The additional amount required is £2.50 for full members and £1.50 for those receiving only the Bulletin. The amounts should be sent with your annual dues.

READING CIRCLE — The American Fern Journal, a quarterly containing much information for those seriously interested in ferns, is circulated to Reading Circle members. To join, apply to Mrs Mary Potts, 4 Kennel Lane, Webbington, near Axbridge, Somerset.

COMMITTEE VACANCIES — In accordance with paragraph 3, section 3 of the Society's constitution two vacancies will occur due to the retirement of the two longest serving Committee members.

Nominations are invited from members of the Society to fill the two vacancies at the Annual General Meeting in February 1982.

The name of the nominees, proposer and seconder together with a letter from the nominee indicating willingness to serve should reach the Secretary by the 31st of January 1982.

AFFILIATION TO THE ROYAL HORTICULTURAL SOCIETY — For several years now, this Society has been affiliated to the Royal Horticultural Society, enabling members to enjoy certain privileges in connection with RHS shows, competitions and services. Full details are available from the BPS General Secretary. A limited number of tickets are available which admit one to the Chelsea Show and the Great Autumn Show. These tickets will be allocated to BPS members on a first come - first served basis. There are also two transferable tickets available for all other RHS Shows.

Applications together with a self-addressed envelope should be made to the BPS General Secretary.

SPECIAL NOTICE – As an essential economy measure, the Department of Botany at the British Museum (Natural History) will no longer be open on Saturdays to deal with general public enquiries, as from 1.1.81

However, special arrangements will be made for the benefit of visitors who give reasonable advance notice of their wish to use the Department's facilities on particular Saturdays. (BM(NH)Information)

FERN GAZETTE BINDERS – Binders for Volumes 10 & 11 of the British Fern Gazette are now available from the General Secretary. Attractively produced with light green hard board covers with gold blocked lettering on spine; only £2.50 each including postage and packing.
Cash with order, please make cheques payable to A R Busby.

THE GREENFIELD FUND – In 1973 when the affairs of our Grand Old Man, Percy Greenfield, were settled, his daughter-in-law, Mrs Elizabeth Greenfield, expressed a wish to donate £500 from his estate to the Society as a memorial to him.

Further donations at the time plus £250 from Society funds enabled the Committee to invest £1000 in an investment trust. The interest this yields annually is used to finance approved research projects, helping with the costs of necessary equipment, books and travel expenses. Awards for meritorious achievements such as the introduction of a new fern variety or plant and some of the Society publicity projects would be considered as worthy of help from the fund.

Percy Greenfield's interest leaned very much towards the non-scientific side of our activities and it was felt that he would want this to be taken into consideration when decisions are made. Workers eligible for university grants and similar support will not, therefore, be eligible for help from the fund. Members with projects wishing to benefit from this memorial trust should apply to the trustees via the General Secretary.

THE INTERNATIONAL ASSOCIATION OF PTERIDOLOGISTS

A C Jermy

On 24 August 1981, during the 13th International Botanical Congress in Sydney, a meeting was held to launch an International Association of Pteridologists. Dr R E Holttum (R.B.G., Kew) was elected President, Dr W H Wagner (Michigan University, Ann Arbor) Vice-President, A C Jermy (British Museum (Natural History)) Chairman of Council, Professor Dr E Hennipman (Utrecht University) Secretary, Dr U Sen (Kalyani University, India) Treasurer, and Dr L Gomez P. (National Museum of Costa Rica) Bulletin Editor. The Council consists of the above together with Dr D R Given (D.S.I.R., Christchurch, New Zealand) Professor K Iwatsuki (Kyoto University, Japan), Dr R M Lloyd (Ohio University, Athens, U.S.A.), Dr J T Mickel (New York Botanic Garden), Professor E A Schelpe (Cape Town University, South Africa), Dr M Tindale (Sydney Botanic Garden, New South Wales) and Professor Wang Zhu Hao (South China Institute of Botany). Membership is open to all interested in pteridophytes on paying a subscription of US $ 5.00 to Professor Hennipman at the Instituut voor systematische plantkunde, Heidelberglaan 2, 3508 TC Utrecht. Members of the International Association of Plant Taxonomy (IAPT), to which the IAP is affiliated are exempt from paying a further subscription but should signify their desire to be members to Professor Hennipman as above. The aim of the IAP is to facilitate communication between pteridologists through the dissemination of a Newsletter or Bulletin, to arrange meetings and symposia at and between Botanical Congresses. Any suggestions as to a role IAP can play will be welcomed by Professor Hennipman or the writer of this note.

FINANCIAL STATEMENT AS AT 31 DECEMBER 1980

ORDINARY ACCOUNT

Income

1979		£	£
£2404.13	Subscriptions		2802.55
	Sales —		
172.50	Gazettes, Bulletins,	194.00	
85.00	Book Sales (Profits)	50.00	244.00
12.50	Sundries		8.00
146.87	Interest on Deposit Accounts		99.19
			£3153.74

Expenditure

£509.00	Metloc A/C Bulletin Vol 2 No 2	547.00
1310.00	Gazette Vol 12 Part 2	2027.24
222.82	Printing and Stationery	249.37
510.53	Administrative Expenses and Postage	681.82
24.60	Subscriptions to Societies	40.15
	Transfer to Publications Account	194.00
		£3739.58
140.95DR	Excess of Expenditure over Income	585.84DR
1592.77	Balance Carried Forward	1451.82
	Balance Carried Forward in Ordinary Account	£865.98

PUBLICATIONS ACCOUNT

Balance Carried Forward from 1979	596.24
Transferred from Ordinary Account	194.00
	790.24
Printing of Excess Gazettes for Reserve Stock	282.00
Balance Carried Forward	£508.24

GREENFIELD FUND

Balance Carried Forward from 1979	1271.69
Interest	115.90
	1387.59
Grants Awarded	50.00
Balance Carried Forward	£1337.59

THE ANNUAL GENERAL MEETING – 14 FEBRUARY 1981

The 78th AGM of the Society was held at the British Museum (Natural History) in London at 2.30 p.m. and was attended by 41 members. The President, J W Dyce was in the Chair.

The Secretary reported that it was still too early to assess the effects of the rise in the subscription rates, but a flood of resignations had not occurred and our membership was steadily increasing all the time, thanks to the large number of new members. Every year these ensure that, despite members dropping out for various reasons, we maintain a comfortable gain. At the moment the membership stands at 590.

Some meetings were rather poorly attended and one had, regrettably, to be cancelled. He touched on the President's visit to the USA and the contacts he had made there which should help to bring the Societies closer together. Another move in the same direction was the arrangements organised by Nigel Hall for the settlement of subscription balances between ourselves and the American Fern Society, which should encourage more members to belong to both Societies.

He referred to the joint meeting with the Botanical Society of the British Isles held at Brathay in Cumbria in September. This proved to be a most successful venture, enjoyed by all who took part, and it is hoped it will be the forerunner of more such meetings with other societies in future.

The Treasurer reported on our finances, dealing at length with the Society's difficulties which had necessitated the steep rise in the subscription rates. He was confident we could now look ahead to better times – at least for a while.

We had no report from the Gazette Editor, but the material for the 1981 issue was ready for the printers. The Bulletin Editor appealed for more support from members – so far he had received only a few contributions for this year's issue.

The retiring members of the Committee were A C Jermy and H L Schollick, and the President thanked them for their services while in office. They were replaced by John Woodhams whom we welcomed back again on the Committee for another stint and by Peter Edwards from Kew Herbarium. The other officers remain unchanged.

The Meetings Secretary outlined his programme for 1981, which included only one full week's meeting, three weekend meetings, three day meetings and two indoor meetings.

The meeting closed at 3.00 p.m. to be followed by our Spring Indoor Meeting.

MEETINGS 1981

J W Dyce

INDOOR MEETINGS

The **Spring Indoor Meeting** was held on the 14 February in conjunction with the AGM at the British Museum (Natural History) in the Conversazione Room. We had our usual good attendance and over 40 members were present. Displays included a collection of colour photographs received by our Secretary from Mr S Mitsuta of Kyoto in Japan, showing some of Japan's ferns. Booksales had a display of books for sale and plants were on exhibit and for sale.

The British Museum (Natural History) is celebrating its Centenary this year, and to mark the occasion Clive Jermy and his staff arranged for us to visit the Fern Section of the Department of Botany after the AGM was over, to see something of the work which is carried on there and the collections of herbarium records. Martin Rickard who is still very active on his work on the variations of the Polypodiums took the opportunity to put on exhibit some of the sheets of polypodium varieties taken from our Society's herbariums. These herbariums are held in safe custody for us by the Museum. Returning to the Conversazione Room, some time was spent in conversation while enjoying light refreshments, supplied and served by our usual willing and cheerful band of young lady members to whom we give our appreciative thanks.

The **Autumn Indoor Meeting** was held on 7 November at the Chelsea Physic Garden and was attended by about 30 members. The first half hour was spent looking round the Garden which always has much of general interest in addition to the ferns. Our speaker was Dr Tony Braithwaite who talked on the New Hebrides, the group of islands in the Pacific Ocean roughly 1500 miles east of Australia, and their ferns accompanied by many slides. A bonus talk was given later in the meeting by our German member Wolfram Lobin, who was on a visit to this country. His subject was his visit to the Cape Verde Islands off the west coast of Africa and he had many slides of fern interest to show us. Both talks contained much of interest.

Books were on sale, also many fern plants, and there was an exhibit by Dr Mary Gibby of a new hybrid fern, *Dryopteris X sarvelae (D. expansa X carthusiana).* A welcome cup of tea and cakes was provided by Mary Gibby and dispensed by a bevy of our young ladies.

DAY MEETINGS

J W Dyce

Kew Gardens — 16 May. This popular afternoon meeting to the Fern Houses continues to be one of the best attended. We were welcomed by John Woodhams who talked to us about the many ferns received by Kew from overseas and the problems involved in meeting their varied growing needs. A fine plant of *Polypodium X schneideri* was exhibited and Professor Holttum gave a short talk on this hybrid between *Polypodium aureum* and *P. vulgare* 'Cornubiense'. Afterwards the Alpine House was visited to see some of the ferns there. Many of us took advantage of Mrs Holttum's kind invitation to go on to the Holttum residence where she and the Professor spent a very busy time supplying an appreciative mob with tea and delicious home-baked scones and cakes. Thank you, Ursula and Eric Holttum.

Savill Garden, Windsor — 11 July. There was an attendance of 21 members and friends at this very interesting meeting, held on a sunny afternoon. We were welcomed by our member John Bond, the Keeper of the Garden who, after a short talk about his charge, conducted us round the many places of interest, specialising of course in the large fern collection. This is not concentrated in one place but is scattered in groups around the Garden in many "alcoves" among the trees and shrubs. When there is room in a garden there is a lot to be said for this method of presenting the collection. One can appreciate the beauty of the different ferns in small doses rather than be overwhelmed by having them all thrust on you at once, and consequently overlooking many good things.

Many gifts of plants have swelled the collection since we last visited the Garden some years ago. Philip Coke has contributed some superb Lady Fern varieties of his own raising, and Ray and Rita Coughlin have also added their share of good things from their large collection. Most interesting, too, are the many hybrid ferns presented by Christopher Fraser Jenkins who must find it a great problem finding accommodation for his many experimental plants. At the Savill Garden they add to the interest of the fern collection there while still being available for study by Chris.

This Garden with its many trees, shrubs and plants, and its stretches of water overhung by magnificent Royal Ferns is a delightful place to spend a sunny summer afternoon, finishing up with a welcome cup of tea and cakes out of doors at the restaurant. We had a very enjoyable afternoon and we thank John Bond for giving up his time for us, for his conducted tour of the Garden and his many interesting and informative comments.

Jackamoor's Hardy Plant Farm, Enfield, Middlesex – 12 September. A party of 26 members and friends turned up for this visit. We were blessed with a bright sunny day and a happy time was spent roaming round the nursery looking at the various plants offered for sale and carefully choosing those we wanted to buy. At the end of the day there was a long queue of members clutching boxes, thoughtfully provided for the purpose, full of ferns and other plants.

Since Martin Rickard and I paid a visit to the nursery about a year ago many improvements have been made but much more remains to be done to bring it back to full production. We were assured that when we go again next year – we plan another visit – there will be a still larger selection of plants available.

We were warmly welcomed by the proprietor, Mr F M Gloyne, and by Mary Pledger who runs the nursery, and we thank them for providing us with a most enjoyable and interesting afternoon.

But all was not over. One of our members, Kenneth Bains, who lives near, contacted me last autumn after reading about the Jackamoor visit in our meetings programme, and extended an invitation to the party to visit his home afterwards and partake of tea and sandwiches. Most of us accepted the invitation so he was invaded by a horde of thirsty people who thoroughly enjoyed this delightful finish to the day. It was much more of a pleasure than we anticipated, for we found that Kenneth has a most beautiful large garden with a stretch of cool green lawn extending from the house and splashes of gay colour from masses of geraniums and other flowers, as well as surprises hidden round each corner and a disused canal at the far end. It was so unexpected to find such a lovely restful garden, completely secluded, in the midst of Enfield's stone jungle and it made a most happy end to our day. Thank you, Kenneth, and we look forward to visiting you again next year.

REGIONAL DAY MEETINGS

Mary Potts

SOUTH-WEST ENGLAND. The first meeting of the season in this area, was held at Bristol on a dull and damp day at the beginning of July. Eight members and friends attended the walk in Leigh Woods in the morning and the tour of Bristol Botanic Gardens in the afternoon.

The walk in Leigh Woods led down a steep path through thin woodland in the Nightingale Valley and eventually led to the banks of the Avon, the terrain including screes and quarries. Eleven species of ferns were seen (no varieties), mostly those associated with woodland growing on limestone. After a picnic lunch Mark Smith led an interesting and entertaining tour of the Botanic Gardens. The new planting of ferns in the original water-washed limestone grotto was admired, along with an efficient sprinkler system to help establish the plants and prevent them from drying out in the summer months. Mark's collection of ferns, imported earlier this year from New Zealand, were a source of great interest, these included some filmy ferns, growing in closed cases.

Everyone spent an enjoyable afternoon and our thanks are due to Mark for his time and generosity in handing out a diverse selection of interesting plants.

Philip and Mary Coke's Open Day. Philip and Mary entertained a party of fourteen people on a dry but cool day in August. Philip's garden displayed those two qualities which are so difficult to combine; it appeared exuberant while still obviously well tended and controlled. This year the plants of *Asplenium scolopendrium* were set in a separate bed, and members were able to compare the differences in variation and observe some interesting new muricate forms. The causes of variation in *A. scolopendrium* were discussed again (does anyone have the answer to this question?) Many other fine plants were admired, a particularly fine form of *Polystichum setiferum* 'Divisilobum' grown from spores; the perfect shuttlecock of *Dryopteris kashmiriana* and a fine large fronded polypody resembling a good 'Omnilacerum'. Philip has also planted a bed of tender ferns which he intends to remove indoors before winter. The collection of maidenhairs improves each year; particularly arresting was a fine plant of *Adiantum raddianum* 'Kensington gem' with bright green cascading fronds. Many members brought plants for exchange and, along with Philip's generosity, we were all able to return home with new plants for our gardens. Our thanks to Jimmy Dyce for attending the meeting and bringing a marvellous selection of fern books, new and old, and of course to Mary and Philip for their generous hospitality.

Christopher and Mary Pott's Open Day. Fourteen members attended this meeting in early September. (A short walk had been arranged for the morning. Due to lack of organisation one member found himself walking alone — Apologies). The garden, or at least a portion of it, had been completely cleared of undergrowth and re-designed in the last two years, and the majority of ferns planted in March and April of this year. A dry stone wall interplanted with ferns, (polystichums, adiantums and hart's tongues) was built in January and a crest of polypodies, in variety, added in May. The exceedingly wet spring had favoured this planting and all were growing well. Some of the surplus plants from this scheme were exchanged along with other plants contributed by members. Some new members joined the Society at this meeting and a convivial day was enjoyed by the hosts and those present.

Mary Potts

WEST MIDLAND. Once again, the season begins with the Society's stand at the 'Welcome to Spring' Flower Show held on 19-20th April at Notcutt's Garden Centre, Monkspath, Solihull. It was encouraging to see hardy ferns offered for sale at the garden centre this year; perhaps our propaganda is beginning to have some effect. Six members visited the stand and it was gratifying to meet new members of the Society from the area. My thanks to Ray Smith for kindly manning the stand with me for the two days and to Mrs D Watson and the Committee of the Solihull Horticultural Society for providing the stand free of charge.

Waldy and Greta Pierozynski's Open Day. On Saturday 6th June Waldy and Greta kindly invited members to visit their home. The meeting began with a field meeting in the morning. Seventeen members and guests assembled at Great Witley Court, Worcestershire and took the opportunity to visit the magnificent Baroque styled church. Emerging from the church we were met with leaden skies and were forced to shelter from the storm in the church porch. The enormous Great Witley Court was sadly destroyed by fire some 45 years ago and a tour of the ruins provided our first ferns of the day, all of them on the mortared brickwork — *Asplenium ruta-muraria, A. trichomanes, A. scolopendrium.* After refreshments at the Hundred House Inn, the weather improved and Waldy lead the meeting to Ribbesford Woods where *Dryopteris filix-mas, D. affinis, D. dilatata* and a large *D. carthusiana* were noted. An old wooded quarry added *Polypodium vulgare* with serrated pinnae and an abundance of *Polystichum setiferum* to the list. Following a stream uphill, we found more *Dryopteris spp.* and *Athyrium filix-femina.* Ray Smith who had wandered off in another direction returned with fronds of *Blechnum spicant.* The ubiquitous *Pteridium aquilinum* gave us our thirteenth species that morning.

The highlight of the day came when the party retired to Waldy and Greta's home in Stourport-on-Severn where Greta kindly provided us with a superb tea. This was enjoyed while marvelling at Waldy's collection of exotic ferns. Tropical ferns in the prime of condition were in evidence everywhere, obviously the result of Waldy's excellent cultivation. Even more exotic treasurers were revealed in his heated greenhouse.

To those of us who thought that growing an exotic collection in the home is unrealistic, Waldy and Greta's achievements were an object lesson in home fern growing.

May I express a warm thank-you to Waldy and Greta for providing the local members with a full and very interesting day.

Dr and Mrs George Hearn's Open Day. On Saturday 29 August, Dr and Mrs George Hearn kindly agreed to open their garden to local members. Dr Hearn provided everyone with a numbered catalogue of his fern collection. Considering his garden is only 1½ miles from the centre of Birmingham, its wooded aspect provided a peaceful environment in which to enjoy the collection. Although the afternoon began with a little light rain, we were able to enjoy the garden in the dry for the best part of the afternoon.

Considering the rather dry second half of Summer, the ferns had stood up to it very well. Although this was partly due to the excellent shading provided by several trees, it also emphasised the value of mulching fern borders with peat or leafmould during the later part of the Winter.

In the house, Dr Hearn displayed photographs showing that his garden has colour and interest throughout the year, and this was accompanied with a small display of items and a biography of the local Victorian fern grower, J E Mapplebeck. A number of Mappelbeck's ferns form part of Dr Hearn's fern collection. Thanks are due to Dr and Mrs Hearn for their kindness and hospitality enjoyed by twenty-eight members and guests.

On the evening of Thursday 29 October, twenty-three members and guests gathered at the University of Aston for a wine and cheese party, with the visual entertainment provided by the display of member's colour-slides. Although mainly of ferns, mention must be made of Ray and Brenda Smith's slides taken during their spring-time visit to Iceland. The slides featured cystopteris, athyrium, polypodium and botrychium together with many slides of the Icelandic terrain and its flower and lichen flora.

A notable feature of the evening was a splendid lady-fern variety displayed by Rita and Ray Coughlin, *Athyrium filix-femina 'Kalothrix Coughlin',* a remarkable variety raised from their spore sowings.

Thanks are due to Valerie and Jackie Ogden and Margaret Busby for helping to organise an evening the members made so enjoyable.

Arrangements for next year's local meetings are already in hand but Midland members with ideas for venues are invited to write to me so that an interesting programme of visits is assured.

A R Busby

WEEKEND MEETINGS

J W Dyce

Newcastle Emlyn, South-West Wales, 11–15 June. This long week-end meeting was a successful innovation with eight members present, some of them for only part of the time. Among them we were especially pleased to welcome Dr Gerhard Schultze and his wife from Ludwigshafen in Germany, whose fern knowledge was a great asset to the party. This type of weekend meeting proved most successful and can usefully be adopted more frequently in future; it gives more opportunity for members who cannot spare a whole week, and is long enough (3½ days) to cover a small area in some detail without having too much of a scramble. Our chosen area was a very ferny one, well-wooded with many quite respectable rivers, small streams and ravine valleys, and even a long weekend enabled us only to sample it – it would have been most frustrating and tantalising to have had only the 1½ days of a normal weekend to explore the many interesting places.

From our centre at Newcastle Emlyn we worked a few miles west to the River Ceri valley and south down the River Cych and some way beyond Carmarthen. Eastwards we travelled beyond Lampeter to the old gold mines area near Pumsaint, and here we found some most interesting fern ground in very hilly surroundings which I have earmarked for further attention – a light rain made the undergrowth rather too damp for detailed exploration. Our hotel in Newcastle Emlyn, the Emlyn Arms, also deserves some mention – it was very comfortable, most efficiently run, and a very friendly atmosphere added greatly to the enjoyment of our stay. The weather was kind to us, apart from some light rain on the Sunday which did little to inhibit our activities.

The ferns seen, 20 species in all, included one horsetail, *Equisetum arvense*, and one hybrid (possibly two). They were the species normally expected in this type of country. *Athyrium filix-femina* was abundant in most places, also the three dryopteris species, *D. filix-mas, D. affinis* and *D. dilatata.* Only one plant of *D. carthusiana* was found, rather surprisingly since there seemed to be so much suitable ground for this species. A second sub species of *D. affinis* was noted commonly in several places. Widespread was *Blechnum spicant,* also the ubiquitous *Pteridium aquilinum; Polystichum aculeatum* was seen in two places, one of them in the National Grid square 22/34 a new record the the *Fern Atlas,* as was *P. setiferum* for the same square. The latter was more common and abundant but scattered in its distribution. The polypodies, both *P. vulgare* and *P. interjectum* were seen in many places and again there were new *Atlas* records for several squares. In one area *P. X mantoniae* was seen several times. In only one place did we find *P. australe* which we made a special journey to see on the ruined walls of Dryslwyn Castle, to the west of Llandeilo. Several species of asplenium were recorded. *A. scolopendrium* appeared in most places but nowhere in abundance, *A. ruta-muraria* was seen occasionally on walls, *A. adiantum-nigrum* grew rather sparingly on some roadside banks, but *A. trichomanes* appeared wherever there were suitable wall habitats for it. Some fine colonies of *A. ceterach* were found and this fern is always a popular find and attracts admiration whenever seen.

Fern varieties were rare and only one lady fern, a good regularly divided 'Denticulatum' with several crowns was collected and divided among interested members of the party. A small colony of several plants of *D. filix-mas* 'Crispa' was also seen. An interesting find was what Gerhard Schultze identified as possibly *D. X woynarii (D. affinis X dilatata)* and a frond was collected to enable the record to be confirmed. Alas for our hopes! it turned out to be *D. dilatata*!

Wigglesworth, North Yorks, 26–28 June. This meeting was attended for all or part of the time by 8 members and 2 visitors. Usually when in this part of the country we have hunted slightly further to the north and this departure, with our centre a very comfortable hotel, The Plough, in this small village, was planned and led by Nick Hards who had devoted a lot of time to his "homework".

We assembled on the Friday evening and our first visit on Saturday morning was to Birchshow Rocks (34/7862) which proved to be rather poor in number of fern species, and only 6 of the more common ones plus one horsetail were found. In the afternoon we travelled further afield northwards to Attermire Scar near Settle (34/8464). This provided better hunting with 18 species recorded, chiefly the limestone ferns. Of note, were *Asplenium viride*, a lot of it being bifid and trifid plants, *Dryopteris villarii* and *Gymnocarpium robertianum.* In some boggy ground *D. carthusiana* was found along with the horsetails, *Equisetum arvense* and *E. fluviatile.* Some *Polystichum aculeatum* was seen and one plant of *P. lonchitis* which re-establishes an old pre-1950 record for this fern in this grid square. A new record for the square was *D. affinis* (*D. pseudomas*).

On Sunday, by a misunderstanding the party got split. Some of us visited a garden in the area which had a good fern collection while the others went directly to Ingleton, the chosen area for the day. A short visit was also paid to Jim Lord's garden in Austwick and it was most enjoyable to renew our acquaintance with this beautifully kept garden with its fine collection of ferns.

At Ingleton two rivers converge, the Twiss and the Doe. The woods along the Twiss (34/6973 to 6975) are rich in ferns and very interesting, with outcrops of both limestone and acid rocks. There were some find stands of *Oreopteris limbosperma* with abundant *Phegopteris connectilis* higher up. We had hoped to see *Gymnocarpium dryopteris* but were out of luck. We did find *G. robertianum* growing rather surprisingly in the woods. A report of *Hymenophyllum wilsonii* growing near Thornton Force led to some long but unsuccessful hunting. We made a somewhat brief foray on to Twistleton Scar End (34/7075). The dominant ferns here were *A. viride* and *D. villarii*, both very abundant and large. Other ferns were much scarcer and we found only one plant of *G. robertianum.* We did not reach the higher parts and a more thorough search could well discover *P. lonchitis* up on the top.

Moving down the River Doe (34/7074) we concentrated on searching the rocks for *H. wilsonii* but did not find it. In the woods *G. dryopteris* was abundant and re-establishes a pre-1950 record for the square 34/77, and a new record was *P. connectilis. Cryptogramma crispa* is recorded from an old quarry near the end of the walk but there was no sign of it now and the quarry has become very overgrown. The woods along this part of the Doe are extremely rich in ferns and well worth searching more fully.

Nearer Wigglesworth some brief hunting gathered in 12 records of the more common ferns but they included two new records for the square 34/85, *D. affinis* and *O. limbosperma.*

Silverdale, Lancs, 17–19 July. This was another well attended meeting (quite a feature of all our meetings this year so far – I hope it continues!) with a total of 19 members and friends present for all or part of the time. Some were attending our field meetings for the first time and we were particularly pleased to welcome Peggy Amberson from the U.S.A. They all seemed to enjoy themselves, so let us hope we shall see more of them at future meetings. It was a great pleasure to see Reginald Kaye again and most of our time when not out in the field was spent in his fern nursery which was only a few minutes' walk from our centre, the Silverdale Hotel. While there on the Saturday afternoon we were very kindly invited to visit the garden of his next door neighbours, Mr and Mrs Kershaw, and have tea and cakes with them. This visit to a very lovely garden, with a magnificent view over Morecambe Bay, and its most hospitable owners, made a very happy interlude to fern hunting. Reg's comprehensive fern collection was a great attraction and much time was spent admiring and casting envious eyes on his many treasures – not always in vain, for many of us left with plants of coveted ferns.

Thanks to Alan Ogden we were able to arrange with John Mashiter, a one-time member of the Society and warden for the National Trust of Grubbins Wood (34/4477), to have a conducted tour of the wood on the Saturday morning. We recorded 14 fern species and a possible hybrid, *Dryopteris X tavelii. Athyrium filix-femina*, the common dryopteris species, *Blechnum spicant, Asplenium scolopendrium, Polypodium interjectum* and *Pteridium aquilinum* were all there, and we also noted both polystichum species *P. aculeatum* and *P. setiferum, Oreopteris limbosperma* and a small colony of *Phegopteris connectilis. A. ruta-muraria* and *A. trichomanes* grew on some rocks. Accompanying Mr Mashiter was Mrs Margaret Baecker, a local botanist and plant recorder for the area, who welcomed the opportunity to sort out some of her fern queries.

Before breaking for lunch a short visit was paid to an old quarry on Arnside Knott. This produced a small selection of the commoner ferns with also *D. villarii*. The attraction here was *Ophioglossum vulgatum* but we did not find it. In the afternoon we visited Underlaid Wood (34/4879) and again the ferns were much the same but included *Cystopteris fragilis*. On the roadside wall a young scolopendrium which, hopefully, will turn out to be the variety 'Crispum', was collected.

Sunday morning was devoted to Warton Crag, an extensive limestone mass which in the past has made some notable contributions to our garden fern riches and was one of the places which stimulated the inception and early growth of our Society. We recorded 15 fern species, none different from those seen elsewhere, but alas! the Crag did not live up to its reputation of earlier days and no varieties were found! We formed the opinion that Warton Crag has changed very much ecologically since the days 100 years ago when our Society founders were familiar with it. It is well overgrown with trees and scrub, none of it old and obviously well under 50 years in age, so it would seem reasonable to assume that the limestone pavement and scar formations were more open in those days and more likely to harbour good things in their grikes and crevices.

In the afternoon members began to leave on their journey home. While some of us returned to Reginald Kaye's nursery to make last minute fern purchases others went on to the north side of the bay, accompanying Leslie Dugdale to his home at Grange-over-Sands to see his fern collection. Leslie had extended an invitation to us all to go over earlier in the weekend but the time was too short to fit everything in.

All told, it was an enjoyable weekend and the weather was kind to us until the Sunday afternoon when rain began – but too late to spoil out hunting. It was good to sit round a long table at the hotel on the Saturday evening and enjoy dinner in the company of a goodly assembly of members, with Reginald Kaye as an honoured guest, and we thank him for his contribution to the fern interest of the weekend. Also we warmly thank John Mashiter for so kindly giving up his time to us on the Saturday morning and for his detailed notes on localities and fern species in the area, which he prepared for me. We thank too, Leslie Dugdale for his hospitality and regret that we were unable to take fuller advantage of his invitation.

WEEK MEETING

J W Dyce

Chard, Somerset — 1/8 August. This was our only week meeting this year and the area chosen is a popular one, not too far removed from the centre of things and with quite a good indigenous membership. Added up, these, we hoped, would produce a good turn-out for the meeting. In the event, it proved to be one of the more poorly attended gatherings of the year. None of the members within easy reach turned up or tried to contact us, with a few exceptions. For the whole week we had a party of six, and we were joined by our Membership Secretary for the last two days. However, as we always say, consolingly, when our numbers are small, we were enabled to move around more expeditiously with the party well under control and this helped us to do and see more.

One member who should have been with us but was not, was Martin Rickard. Unfortunately for us he had to move house from the Cambridge area to Ludlow in Shropshire, a move which has pleased him greatly, but NOT during the week of this meeting which he was instrumental in planning and was looking forward to eagerly. He did get down to the area during the previous week and much of the success of the meeting was due to his efforts then. The London contingent travelled down to Chard two days early to contact Martin and we had a strenuous two days in the field with him. This enabled him to prime us with the results of his "homework" which helped Chris Page and I to plan quite a successful week.

It is always a great pleasure to have Chris with us on our meetings — he is a professional botanist who can always get down to the level of the amateurs and his contribution was a major one. Unfortunately, the botanists "have been at it" again with more name changes. We knew they were in the "pipeline" and for the last year or two it has been very obvious to even our amateur field workers that *Dryopteris pseudomas* was a lot more than it seemed to be! Now it is all out in the open, and Chris was able, in the field, and indoors on our one wet morning, to explain the changes and how they can be recognised. The matter is further complicated by the fact that *D. pseudomas* hybridises with *D. filix-mas* to produce *D. X tavelii*, and as all three sub-species of *D. pseudomas* which must now be called *D. affinis*, are involved, there are *three* forms of *D. X tavelii* (not yet named). Some years ago on a visit to Dollar Glen in Clackmannanshire, Chris Page and I were thrust headlong into a conglomeration of this mix-up which demonstrated to us the urgency of the problem. Now, hopefully, this year, we can go back again, armed with the necessary information to answer the many questions which faced us at the time.

I am afraid that all this is a digression from the Chard meeting report, but I want to break it gently (!) to those of our membership who take a keen interest in such matters. I do not propose to say more because I am not a trained botanist and I may find myself in deep water if I do! I am hoping I shall be able to persuade Chris Page to add a postscript to this report, giving a down-to-earth explanation of the changes.

With three of us, Jim Crabbe, John Cramp and myself already installed in the centre hotel, The George in Fore Street, Chard, we waited for the rush of participating members to arrive on the Saturday evening — it materialised in the shape of Chris Page, accompanied by Marion Barker, both of them specialising in the horsetails, and followed on Monday by Pat Roberts, a new fern enthusiast from Surrey. By this time Martin Rickard was back home, swearing roundly, I venture to guess, at being deprived by circumstances of this opportunity to enjoy some fern hunting in convivial company.

Sunday was a perfect sunny day but not too hot. We travelled east and during the morning explored round the lanes in the Dinnington and Hinton St George area (Grid ref. 31/41). The ferns seen were all predictable ones for the area, *Asplenium* *scolopendrium, Dryopteris dilatata, D. filix-mas, D. affinis (pseudomas), Polypodium interjectum, Polystichum aculeatum, P. setiferum* and *Pteridium aquilinum*; also the horsetails, *Equisetum arvense* and *E. telmateia.* In the first lane we looked at there was some animated discussion about a colony of polystichums which at first glance seemed to be *P. aculeatum* but closer examination showed them to have pinnules lacking the hard glossiness of this species and more akin to the dull softness of *P. setiferum* We concluded they were the hybrid *P. X bicknellii* but subsequent examination of the spores by Chris on his return to Edinburgh shows them to be *P. aculeatum*. After an excellent pub lunch in Hinton St George we worked back towards Chard via Cudworth and Chaffcombe and finished up at Castle Naroche where we walked the Forestry Commission nature trail in the woodland there. The trail over hilly terrain was interesting but the ferns were few, only 8 species of the common ones being recorded. Amongst them was one of the *tavelii* hybrids along with the parents.

Our preliminary planning with Martin included a visit to Tom Wallace, living at Membury, who specialises in the fungi and is the local recorder for these plants. He arranged to join us on Monday in Bickham Wood, a wet wood lying alongside the A30 road west of Chard (31/26-2708). We found 15 ferns and allies, most of them the common ferns for this part of the country, but they did include *D. carthusiana* which was not seen very often during the week, even in places where we could have expected to find it. It was flourishing in this wet wood, along with its hybrid, *D. X deweveri*. The other parent, *D. dilatata,* was also present in great numbers. Several plants of *D. X tavelii* were also noted. The giant horsetail, *E. telmateia*, was abundant in a habitat much to its liking. In the area there is a small colony of that very rare West Country fern, *Phegopteris connectilis* and we were privileged in being introduced to it by Tom Wallace before we broke off our hunting to have lunch.

In the afternoon we passed through Widworthy and on to Hawkswood Nature Reserve near Offwell (30/1997). Here we visited the butterfly reserve, a protected area on the sloping hillside where some of our more uncommon butterflies can be seen. The reserve is planted with a selection of "butterfly plants", conspicuous among them *Buddleia davidii*. From here we dropped down into the lower parts of the reserve in wet woodland and noted many plants of *Osmunda regalis.* We saw 12 fern species, among them some fine *Blechnum spicant,* plenty of *Athyrium filix-femina, D. affinis, D. filix-mas, D. dilatata* and *P. setiferum*; the hybrid *D. X deweveri* was again present. On the return journey we finished the day with a short visit to a colony of *Ophioglossum vulgatum* in some overgrown meadowland near Membury. We were most grateful to Tom Wallace for sparing the time to accompany us this day and enable us to see much of interest. We hoped he could arrange to join us again later in the week but he was unable to do so.

A heavy wet mist covered the countryside on Tuesday but soon cleared up into another fine day. Our first call was to Monkton Wyld (30/3396), south of Axminster, to visit a colony of *D. aemula*, long known to me since my early days in the Society. It was a new fern to some of the party and was greeted, deservedly, with great admiration. It always gives pleasure to see this fern with its crispy fronds and rich-green colour — one of Britain's loveliest ferns which needs no variety to enhance its beauty.

We were not far from Charmouth where James Moly, one of the renowned fern collectors in the latter part of the last century lived. Continuing last year's successful practice of visiting the old gardens of early fern men (See 1980 Bulletin, The Lake District Meeting), Martin had arranged with Mr Brewer, the present owner of Moly's old home, Langmoor Manor, for us to call and look over the extensive garden. Alas! it is now largely overgrown and in a wild state except for the part near the house. This could, however, have helped to preserve the ferns or good progeny. There were plenty of ferns, all normal species, but no varieties except that several of the lady ferns seemed a bit plumose-like, but no more so than is often seen in the wild. It seemed rather remarkable that this garden of a man who was credited with some hundreds of good finds, should be entirely devoid of a single variety, even a minor one.

Still in the same area, with the permission of the owner, Mrs Parmiter of Hartgrove Farm, another of Martin's arrangements, we visited Bulmoor Copse (30/2993), a steep wood facing west with a stream at the bottom. This was a most pleasant shady place on a rather hot afternoon, and there were many ferns — we recorded a dozen species, some of them in great abundance — to keep us fully interested. The lady fern, the male ferns and polystichums were there and at the bottom of the steep slope in the boggy ground around an artificial pond there was *E. telmateia* and *D. carthusiana* with its hybrid *D. X deweveri*, growing strongly and in good numbers.

After a "rest day" on Wednesday when the party split, each to pursue his/her own interests, we resumed our fern activities on Thursday. There was a violent thunderstorm during the night and this continued with heavy rain all morning. There were good accommodation facilities in the hotel so we planned an indoor meeting and were joined by Philip Coke who arrived to spend the last two days of the meeting with us. We made good use of the morning by inviting Chris Page to talk to us on the recent research into the *D. affinis* complex. This helped a lot to make it more clear to us. Philip Coke talked on his spore propagation activities and with the ensuing general discussion the morning passed quickly. In the meantime the weather had cleared and we were able to sally forth in the afternoon and continue our field work.

The map indicated that we could find a good hunting area in the wooded, hilly and well-watered area just south of Widworthy (30/2198) and there we drove to meander through the lanes, sometimes walking, sometimes car-crawling. Ferns were very abundant particularly the various males, scolopendriums, *P. interjectum, P. setiferum* and, of course, the bracken. In one lane Pat Roberts found a good crested "scollie", the best variety find of the week; it was a large-growing specimen with a heavy crest. Further south in the Southleigh Hills woods (30/2093) we had some of our best hunting for the week. The ferns were very large-growing, with magnificent *A.filix-femina, D. affinis, D. dilatata, D. filix-mas,* and *P. setiferum; A. scolopendrium* was abundant too. It was an ideal place to further discuss the *D. affinis* complex, for there were excellent examples in plenty of both species involved and hybrids for demonstration purposes. We had a good day and this persisted into the evening when some of us, in cheerful mood, forsook our hotel to enjoy an excellent meal in a very good Chinese restaurant in Chard!

Our last day, Friday, was spent in the north at Shapwick (31/4240) to the east of Glastonbury, chiefly to enable some of the party to see *Thelypteris thelypteroides subsp. glabra (T. palustris)*, a fern new to them. We found the area much changed since we were last there several years ago, but fortunately, the Nature Conservancy has stepped in to save some of the wet woodland which is a stronghold for the fern and also for *O. regalis.* We were able to see both ferns in abundance. The habitat was also a suitable one for *D. carthusiana* and the hybrid *D. X deweveri* was there as well.

In the afternoon the party split up, homeward bound, leaving at the centre the London party who travelled home on the Saturday. No new records were made for the Fern Atlas and only one variety was found. Would it have been any different if Martin Rickard had stayed for the week, with his "nose" for seeking out variations!

PTERIDOPHYTE RECORDS — 1981

Compiled by A R Busby

The following records are additions to the "Atlas of Ferns" 1978. Errors reported to me are also included. Due to some degree of re-organisation at the Biological Records Centre, additions and corrections received by me are now forwarded to the vice-county recorder concerned and not to the B.R.C. As in previous years, records are presented thus: 100km square/10km square followed by the recorder's name.

The following records and corrections have been received up to 1 October 1981 and will be forwarded to the respective vice-county recorder.

ENGLAND, WALES AND SCOTLAND — Pre 1950

7.4 x 3 **Equisetum x litorale** — 21/09, L O Barrett. 27/85, A H G Alston.

Post 1950

1.2 **Lycopodium clavatum** — 25/79, 35/09, Mrs M Martin. 26/78, J Mitchell. 32/89, I Taylor.
2.1 **Lycopodiella inundata** — 20/55, R Davis & D Wigston.
6.2 **Isoetes echinospora** — 35/21, R Stokoe.
7.3 **Equisetum fluviatile** — 25/79, 35/06, Mrs M Martin. 52/69, G Easy. 62/02, Nature in N.E. Essex.
7.4 **Equisetum arvense** — 22/32, J W Dyce.
7.4 x 3 **Equisetum x litorale** — 57/20, Hald — Johnson.
7.6 **Equisetum sylvaticum** — 35/16, Mrs M Martin.
7.7 **Equisetum palustre** — 25/78, O M Stewart. 35/28, Mrs M Martin.
7.8 **Equisetum telmateia** — 33/60, A R Busby. 35/37, Mrs M Martin.
9.1 **Ophioglossum vulgatum** — 26/46, A J Silverside. 52/58, Unknown. 52/92, Nature in N.E. Essex.
10.1 **Osmunda regalis** — 39/27, E R Bullard.
11.1 **Cryptogramma crispa** — 25/77, N F Stewart. 25/79 Mrs M Martin.
13.1 **Adiantum capillus-veneris** — 10/86, J Williams, 52/93, J C Williams. 62/14, F W Simpson.
16.1 **Polypodium vulgare** — 22/32, 34, J W Dyce.
16.2 **Polypodium interjectum** — 22/22, 34, 64, J W Dyce.
16.2 x 1 **Polypodium x mantoniae** — 25/37, 97, A McG Stirling.
16.3 **Polypodium australe** — 32/46, M H Rickard.
16.3 x 2 **Polypodium x shivasiae** — 25/97, A McG Stirling.
17.1 **Pteridium aquilinum** — 52/59, R Payne.
19.1 **Phegopteris connectilis** — 31/20, M H Rickard. 34/77, N Hards. 35/09, 36/01, 20, Mrs M Martin. 57/20, E R Bullard.
20.1 **Oreopteris limbosperma** — 34/85, J W Dyce. 35/38 Mrs M Martin.
21.1 **Asplenium scolopendrium** — 25/99, 35/06, 28, Mrs M Martin. 35/19, M Braithwaite. 62/01, Nature in N.E. Essex.
21.2 **Asplenium adiantum-nigrum** — 25/57, R Corner. 26/90, K Hearst. 35/07, 18, 19, M Martin.
21.7 **Asplenium trichomanes** — 62/02, Unknown.
21.7a **Asplenium trichomanes subsp. trichomanes** — 32/25, P M Benoit.
21.10 **Asplenium septentrionale** — 36/24, D S McCosh.
22.1 **Athyrium filix-femina** — 52/54, B & S Jackson. 62/01, Nature in N.E. Essex.
23.1 **Gymnocarpium dryopteris** — 34/77, N Hards. 35/09, 17, 19, Mrs M Martin.

23.2 **Gymnocarpium robertianum** – 33/21, A R Busby.
24.1 **Cystopteris fragilis** – 35/09, Mrs M Martin.
26.1 **Polystichum lonchitis** – 34/86, M H Rickard.
26.2 **Polystichum aculeatum** – 22/34, J W Dyce. 35/07, Dr H Milne-Redhead. 35/29, O M Stewart. 36/01, N F Stewart.
26.3 **Polystichum setiferum** – 22/34, 92, J W Dyce.
27.1 **Dryopteris oreades** – 17/67, H Corley.
27.3 **Dryopteris affinis** – 22/24, 34, 64, 34/85, 86 J W Dyce. 25/98 J D S Martin. 32/38, 49, 33/21, 22, A R Busby. 52/55, M H Rickard.
27.5 **Dryopteris aemula** – 21/31, F Rose.
27.7 **Dryopteris cristata** – 52/99, H J B Birks.
27.8 **Dryopteris carthusiana** – 22/34, J W Dyce. 28/69, M J Marshall. 35/19, M Braithwaite.
27.9 **Dryopteris dilatata** – 62/22, Nature in N.E. Essex.
27.9 x 8 **Dryopteris x deweveri** – 25/79, Mrs M Martin.
28.1 **Blechnum spicant** – 62/01, Nature in N.E. Essex.
29.1 **Pilularia globulifera** – 35/22, R Stokoe.
30.1 **Azolla filiculoides** – 42/09, A R Busby. 52/00, J D Sleath. 52/37, C J Cadbury. 62/47, P G Lawson.

The following errors have been brought to my attention:

2.1 **Lycopodiella inundata** NOT 31/08, 09, G Ellis.
4.1 **Diphasiastrum alpinum** at 36/09, 37/10, 41, 42, should be pre-1950, and at 36/19 now extinct, G Ballantyne.
7.1 **Equisetum hyemale** NOT 57/30, 56/29, E R Bullard.
11.1 **Cryptogramma crispa** NOT 57/30, E R Bullard.
21.1 **Asplenium scolopendrium** NOT 57/34, 44, E R Bullard.
24.1 **Cystopteris fragilis** NOT 57/31, E R Bullard.
26.1 **Polystichum lonchitis** NOT 39/05, 34, E R Bullard.

IRELAND – Post 1950

6.1 **Isoetes lacustris** – H00/98, A Willmot.
7.2 **Equisetum variegatum** – H13/21, Miss M S Sheffington.
7.3 **Equisetum fluviatile** – H10/07, 08, A Willmot.
7.4 **Equisetum arvense** – H00/87, 98, 99, A Willmot.
7.4 x 1 **Equisetum x litorale** – H00/79, A Willmot.
8.1 **Ophioglossum vulgatum** – H00/98, A Willmot.
14.1 **Hymenophyllum tunbridgense** – H00/79, A Willmot.
16.1 **Polypodium vulgare** – H00/79, 88, 89, 99. H10/08, 09, A Willmot.
16.2 **Polypodium interjectum** – H00/78, 87, 88, 89, 97. H 10/07, A. Willmot.
16.2 x 1 **Polypodium x mantoniae** – H10/77, A Willmot.
16.3 **Polypodium australe** – H00/87, A Willmot.
16.3 x 2 **Polypodium x shivasiae** – H10/76, P Hackney.
17.1 **Pteridium aquilinum** – H10/08, A Willmot.
18.1 **Thelypteris thelypteroides subsp. glabra** – H00/98, A Willmot.
19.1 **Phegopteris connectilis** – H00/98, A Willmot.
20.1 **Oreopteris limbosperma** – H00/98, H10/08, A Willmot.
21.2 **Asplenium adiantum-nigrum** – H00/87.
21.7a **Asplenium trichomanes subsp. trichomanes** – H33/32.
21.11 **Asplenium ceterach** – H00/77, 79, A Willmot.
26.2 **Polystichum aculeatum** – H00/98, A Willmot.

26.3 **Polystichum setiferum** – H00/88, 89, 97, H10/07, 09, A Willmot.
27.5 **Dryopteris aemula** – H00/89, A Willmot.
29.1 **Pilularia globulifera** – H02/74, Dr S Segal.

The following error has been brought to my attention:

16.3 x 2 **Polypodium x shivasiae** delete H11/76, P Hackney.

Individual Record Cards (Terrestial) and instructions for their use together with the publication 'Instructions for Recorders', compiled by John Heath and Diane Scott, are available from Biological Records Centre, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs. PE17 2LS.

POLYSTICHUM SETIFERUM 'PLUMOSUM BEVIS'

J W Dyce

I refer to my article under this heading in Bulletin Volume 2 No 1, when I published the discovery that *Polystichum aculeatum* 'Pulcherrimum Bevis' was in fact a variety of *P. setiferum*, not *aculeatum.* I explained that the *Pulcherrimums* are a very special and distinct section of variation in *P. setiferum*, and as 'Bevis' does not possess any of the characteristics of this section it should, to avoid confusion, cease to be called 'Pulcherrimum' and should be known as '*Plumosum* Bevis'. Unfortunately, I only *suggested* this in my article, something I have felt a bit uncomfortable about since, and particularly so now that an article by me on the *Pulcherrimum* variations of *P. setiferum* appears in this issue of the Bulletin.

Recently, browsing through some of our early literature, I re-discovered a paper by Dr F W Stansfield on the subject, something which I should have remembered when I wrote that article on 'Bevis' – but did not remember! I now quote Dr Stansfield's remarks, written in 1896:

"The sensation of 1876 was *P. aculeatum* 'Pulcherrimum' or rather 'Plumosum', as I believe Mr Wollaston on second thoughts, and as I believe more correctly, named it. It was found by one John Bevis, ... In its literal sense the name *pulcherrimum* (meaning very or most beautiful) is not only appropriate but likely to remain so, for it is doubtful whether a more beautiful *aculeatum* will ever be found or raised. Its analogies are however, I think, rather with *plumosum* than with *pulcherrimum* in *angulare*"

When the Doctor wrote those words the fern was, of course, regarded as an *aculeatum* – although he had his doubts about it even then – and his acceptance of the name *pulcherrimum* was linked to this fact. Had he known definitely that it was a *setiferum* – or *angulare* as the species was then known – he would have been aware immediately of the confusion which would arise from the addition of a *pulcherrimum* which was **not** a *pulcherrimum*, to that choice and select coterie of varieties in *setiferum.* Wollaston's second thoughts would have been accepted and the name *Plumosum* adopted. Being in possession of all the facts we can now do this, and in future this magnificent fern variety must be recognised as a *Polystichum setiferum* **'Plumosum Bevis'**.

J BARNETT

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POLYPODIUM GLYCYRRHIZA 'MALAHATENSE'

J W Dyce

While over in the USA last year I came up against a, to me, new fern, *Polypodium glycyrrhiza*, which looks like *P. vulgare*, and in fact was at one time regarded as a variety of this species, with longer slimmer and more pointed pinnatifid segments. But, this fern has what I call a "signature tune". Like *Dryopteris affinis (pseudomas)* with its black spot at the base of the pinnae, and *P. interjectum* 'Cornubiense', with its occasional normal or partly normal frond, which are both definite identification indicators, so *P. glycyrrhiza* has a rhizome which is intensely sweet — just to sink the teeth gently into it will fill the mouth with a strong and lingering sweetness.

In the north-west of the USA is a variety of *P. glycyrrhiza* named 'Cambricum malahatense'. This variety looks just like our *P. australe* 'Cambricum' and received its name when the species was still regarded as *P. vulgare.* This variety first came to the notice of our Society in 1939 when Professor H G Rugg from Dartmouth College in Hanover, New Hampshire, USA, at our Chard meeting that year, told us of the wild find and how it had been named. Of course, 'Cambricum' is a variety of our native *P. australe* and I contended while over in the USA that the name could not be applied legitimately to a variety of the American species *P. glycyrrhiza*. I suggested it should be changed to *'Plumosum* malahatense'. In doing so I overlooked the fact that this variety is *fertile* and therefore cannot be regarded as a *plumosum* anymore than a *cambricum*. Plumose varieties in polypody as well as in all other species, with the exception of *Athyrium filix-femina,* are sterile. Of course the solution to the problem is to drop both *plumosum* and *cambricum* and call the fern *Polypodium glycyrrhiza* 'Malahatense'.

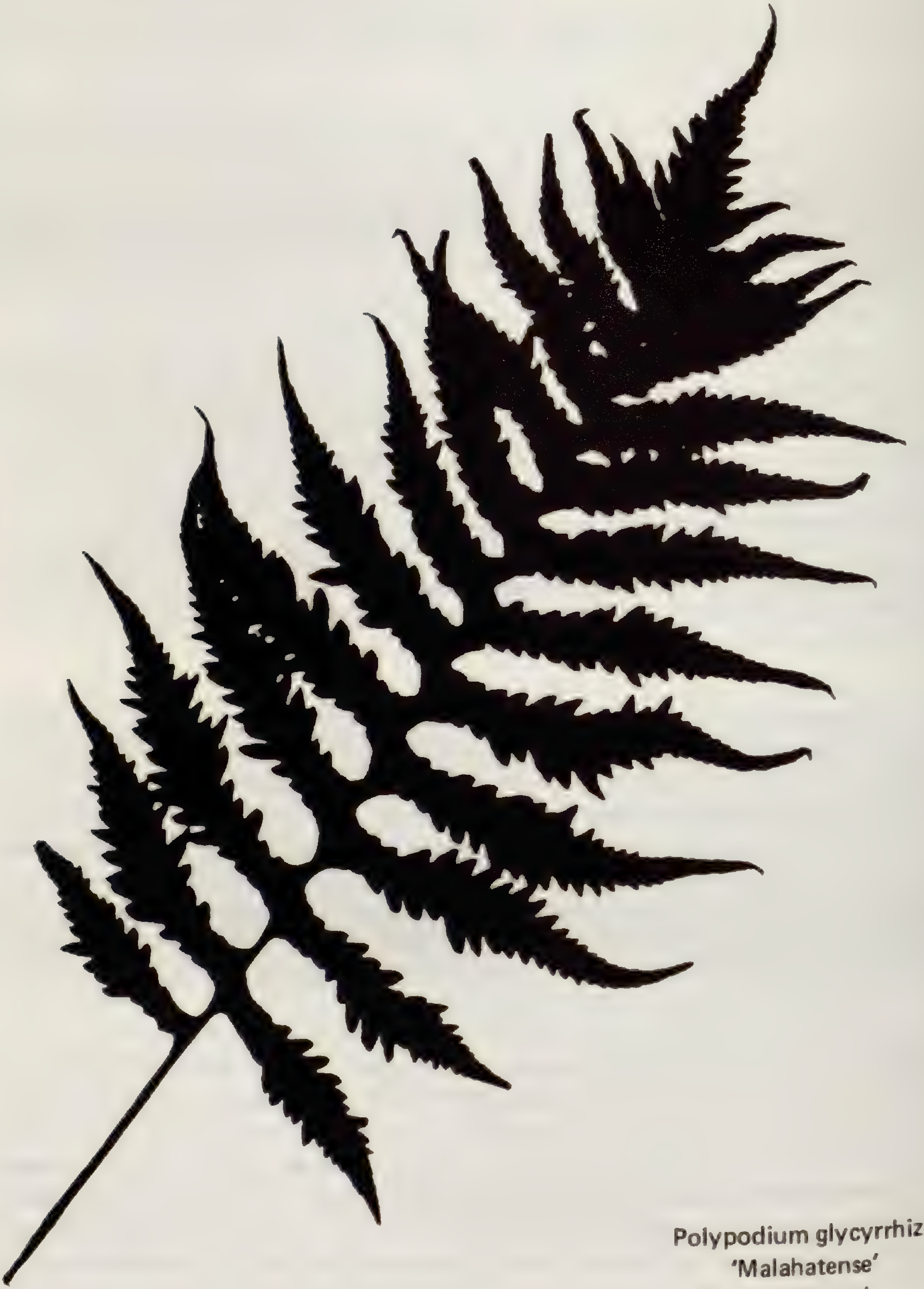
On his return to the USA Professor Rugg sent a small plant of the variety to Dr Tom Stansfield, the son of Dr F W Stansfield. There was one small frond on the plant and Dr Tom's description is interesting:

> "The specimen consists of an inch of rhizome with one well-preserved frond 3 inches long by 1¾ inches at the widest part. It is strongly bipinnatifid, with long sharp-pointed lobes, and has a hard leathery texture very different from our forms of *cambricum*."

When W B Cranfield saw the plant he pointed out its striking resemblance to *P. vulgare* 'Omnilacerum Bennett' as figured in the Appendix to Druerty's "British Ferns and their Varieties", plate XLV on page 353. This does not agree with the plant as we know it, but of course it was a small frond, probably juvenile, and the plant had not settled down to show its true character. However, all this happened on the eve of the Second World War when ferns had to take a back seat. Also, Tom Stansfield died during the war years and no more was heard of the fern.

Since my return to this country I have come across the name 'Malahatense' which is an American Indian name hailing, I am informed, from the south-west corner of Canada, applied to more than one polypody variety. One was exhibited at Southport Flower Show this year under the name *Polypodium malahatense*, and I was told it had been purchased from a north country nurseryman who had imported it from America. It is finely and narrowly divided like *P. interjectum* 'Trichomanoides', but more foliose and larger growing, and I was most interested, thinking it could be a new variety of *P. glycyrrhiza.* After the Show, the owner Brian Russ, one of our members, generously let me have a small bit of the plant. The biting test proved it was NOT *P. glycyrrhiza,* and there is no doubt it is a very fine strain of 'Trichomanoides'. So, over in the USA, as well as in this country, there is confusion over the name 'Malahatense'. I am told there is another form being sold in this country under the name, a narrow-fronded crested polypodium, not in the least like the real 'Cambricum' or its American look-alike name-sake.

To help sort out the confusion, as my own plant of *P. glycyrrhiza* 'Malahatense' has not yet become fully established, I have "imported" a typical frond from an American source to illustrate this article.



Polypodium glycyrrhiza
'Malahatense'
Garden cultivated
10/17/81

HISTORICAL NOTES

Jean Healey

When the Editor of the Bulletin, meeting me recently for the first time, discovered that I had rubbed shoulders with those fern giants of the past, T E Henwood and F W Stansfield, his immediate reaction was that I should try to recall for posterity any personal memories, however trivial, before it was too late. As it is now forty three years since the two died, the recall, I am afraid, will be far from total, rather the smudgy mental snapshots that a child's mind registers.

It would have been 1922, the year we moved into the new house and I had my eighth birthday, when I first noticed Mr Henwood. He looked then exactly like the photograph that accompanied his obituary in the Gazette – an elderly white-bearded man in a neat dark suit and hat, gold watchchain across his chest and a walking stick ever at the ready to point at an object of interest or to lift a leaf that obstructed his view. He was pottering along our drive absorbing every horticultural detail and lost to the world. My mother, glancing out of the window, said "It's Mr Henwood!" and if she didn't actually add "Oh dear!", I felt it in the air. For Mr Henwood was an old friend and must be asked to tea and we had no brown bread in the house. His doctor had insisted that he must not eat white bread, and the doctor's word was law. The doctor was, of course, Dr Stansfield.

To find out why Mr Henwood was in our drive in 1922 it is necessary to go back beyond memory to the realm of hearsay and old documents, to the year 1901. My father, still only thirty five and a bachelor, had been head gardener to the Duke of Connaught at Bagshot Park for nearly ten years. The Duke's military duties were beginning to take him away from home for extended periods and the running of the estate was being left more and more with the agent. My father crossed swords with the agent and was sacked by him. Going to the small local bank to draw the gardeners' wages for the last time he poured out his troubles to the manager, Charles Phillips, whose reply was to invite him into his office to discuss a proposition. Phillips had just been offered promotion to the post of manager at Lloyd's Bank, Bracknell. This involved "living over the shop" in some style, as the Bracknell bank of those days was the converted front room of a substantial Victorian family house, with a good garden, conservatory and greenhouses. The idea was that the premises would make a plant nursery as well as a bank, and that Phillips and Taylor should become partners. An agreement was signed in March 1901. To forestall those who say that a bank manager couldn't have done such a thing, let me hasten to add that the Articles of Partnership were in the name of Mrs Emily Phillips, who took no further part in the proceedings.

The partners were an odd couple, samples of the opposite extremes of Victorian horticulture. My father's experience is summed up in Kipling's poem, from scaring birds off seedbeds, through the potting sheds of several great houses to the top of the working gardener's world – the man who advised on the purchasing of plants to make those borders, beds and shrubberies, lawns and avenues, to say nothing of water gardens and bowling greens. He loved plants and loved making gardens with them. Phillips, on the other hand, was a florist. That is a word that has lost its meaning. Banish the vision of the lady who makes up wreaths and bouquets – a florist then was a man, often an amateur, who grew florists' flowers. In the cramped urban surroundings created by Victorian industrialisation the florist in his limited free time focussed all his instinctive love of the soil on a single genus, often a single species, grew it and bred it as near perfection as he could, joined a society of like-minded people and exhibited at shows in a spirit of often ferocious competitiveness. Phillips specialised in auriculas and the gardens of Lloyd's Bank were soon filled with these. The firm also rented a four-acre field a mile out of the village where my father indulged his own ideas of what a nursery should be.

At last we come back to Mr Henwood again. I fancy he was Mrs Phillip's brother — at any rate there was a family connection and Tom would undoubtedly have been one of the first to come and see what Charlie was up to. The Henwoods lived a dozen miles away, in Reading. Mr Henwood worked at Huntley and Palmer's biscuit factory. What his position in the firm was I don't know — if he had ever talked shop it was all in the past by 1922. He was definitely not one of the hundreds of cyclists who poured out of the factory gates when the hooter signalled knock-off time. He gave an impression of having been an office worker all his life, and if he was in some way responsible for the high reputation those biscuits had attained world-wide I should not be surprised. Quality and reliability were an essential part of him.

In his spare time Mr Henwood was a florist too. Whether he introduced his brother-in-law to auriculas or vice versa I don't know, but having taken up the craze he put into it all his extraordinary skill and enthusiasm. A green-edged show variety called Mrs Henwood was still a "recommended variety" in 1956. Neither do I know just when the auriculas were abandoned in favour of hardy ferns. The process doubtless began when he paid his first visit to the surgery of the new doctor who had put up his brass plate in the Oxford Road, and who was destined to become his dearest friend. In the little garden in Hamilton Road there was no room for two such hobbies and Mr Henwood needed to do anything he undertook exceedingly well. He was, however, never a narrow-minded man, limited though his own scope for growing plants might be. He took a knowledgeable and discriminating interest in everything beautiful and well-grown. Someone had named a *Phlox decussata* variety after him and I recall him muttering that he didn't think much of it.

The Great War came and went. By 1922 the new order of things was established. The war had practically wiped out the hard work put into the nursery. Charles Phillips had retired to live at the seaside in 1917, a stiff, joyless man as I recall him, whose interest had waned. My father took a deep breath and purchased the four-acre field. The boys who had worked there before 1914 came back from the front as grown men, to dig their way spadeful by spadeful through the wilderness of overgrown shrubs and buried forgotten pots. A new house was built on the nursery and from its windows we could see everyone who called. It was natural that Mr Henwood should be there among the first. He would have retired about then and on a fine afternoon could take advantage of the new bus service which delivered him from the end of his road to the very gates of the nursery at the wave of a walking-stick. He took a keen interest in every development, every new acquisition.

There was something more, however, than an afternoon outing to the country which drew him to Bracknell. Whether by accident or design my father had chosen a site ideal for certain kinds of plant. With a gentle slope facing west, partly sheltered by an oak woodland and the high rhododendron thickets of a neighbouring estate, with a tendency to poor drainage over the clay subsoil corrected by land-drains, with three small streams crossing it which did not run dry even in a drought year, it only needed a clump of pre-1914 bamboos left undisturbed in one top corner to make a shaded haven. Soil and water, unlike the slightly alkaline Reading soil, were neutral. Small wonder that Mr Henwood did not come empty-handed. Ferns, of course, had always been part of the stock-in-trade of a general nursery — I have pre-1914 catalogues from non-specialist firms offering anything from a dozen to fifty different kinds, at prices from 5/- a dozen. We now began to accumulate quite a collection of them without really trying. My father had no time to get to know them and they were something of an embarrassment.

Hard on the heels of Mr Henwood came his friend, Dr Stansfield, or, more accurately, they would arrive side by side in the doctor's car. I recall on one occasion Mrs Stansfield and Mrs Henwood sitting in the back of the car, taking what was, in those days, a pleasant excursion. They took no interest in the nursery and I rather fancy declined even to alight – they had more than enough plantmanship at home, no doubt. The doctor was certainly a familiar figure by the following year, when he kindly diagnosed that the child had measles. If he came less often than Mr Henwood it was because, although the two were much the same age, the thought of retirement would never have entered his head. A letter from him dated September 1936 states that he has to visit patients on Saturday morning but will leave some ferns wrapped up for me to collect. His son, qualified as a doctor and living with him, had taken off much of the strain of a busy practice but that just left him more time for editing the *British Fern Gazette* and corresponding with practically everybody in the fern world. His energy was phenomenal – unlike Mr Henwood who was placid and contemplative, the doctor was wiry and bouncy, a constant source of anxiety to his family. I can see him shortly before he died swaying on a rickety stool to reach down a tray from the top shelf of his tiny greenhouse – a stool from which he had already fallen once or twice, to the general alarm. His power of complete concentration on the object of his attention made him utterly unselfconscious, often unconscious, too, of the world around him. On the day he was finally cajoled into giving up driving that little car the family heaved a sigh of relief. The crunch came when traffic lights were erected (they are still there) right outside his corner house in the Oxford Road. He just couldn't be persuaded to notice them.

His interest in ferns was that of a scientist with a photographic memory rather than that of a cultivator. Brought up on a fern nursery, where a good new variety was a saleable commodity, his medical training gave him a developed capacity for observation and a fascination with the underlying oddities of variation in living tissue. His brain seems to have been a computerised catalogue of every hardy fern ever raised or found, labelled "good", "commonplace" or "bad" but never "uninteresting". When Dr Stansfield put a name to a fern it stayed put. True, subversive elements in back rooms might already be threatening to decree that his "angulare" ought to be "setiferum", his "scolopendrium" "phyllitis", but they would never confuse him on the issue of whether a given specimen was a "Foliosum" or an "Imbricatum".

He did not grow as many specimen plants as might have been expected, although there was plenty of room in his garden and he had several shaded structures and frames. The dry Reading air and alkaline soil made it a little unsatisfactory. What he did grow was spores – everyone who found anything of interest would have given the doctor a few spores – and dishes and trays overflowed his little greenhouse onto the outside windowsills of the house and doubtless into every room in the house where he could get away with it. Mr Henwood sowed a few spores too, of course, but he accepted the limitations of his little plot and preferred to make a lifelong friend of any worthy plant he had room for. The doctor, I am sure, in his later days raised plants largely out of curiosity as to what would appear. then gave them away.

It was the doctor's influence that resulted in the plague of butter dishes that fell on the nursery in the early thirties. They've gone the way of all glass now, but I can still see them – purchased by the dozen, probably from Woolworths, of a cheap Czechoslovakian glass, the rather opaque lids making them ideal for spore raising. A mound of boiled loam in the centre of each, a bunch of spore-bearing fronds from Mr Henwood, and we were launched. My father lost interest before the results were large enough to handle but his foreman kept them alive.

I can't recall how I first came to visit Mr Henwood's house – it was always there, easily distinguished from others in the row by the *Bamboo fastuosa* in the front garden. A more unsuitable plant for the few square yards between the pavement and the sitting-room window it is hard to imagine but its owner was proud of its prodigious growth; more to the point, it was shading the window to the great benefit of the *Adiantum venustum* Don in a pot on the windowsill. This form of *Adiantum venustum* was considered a rarity then as people had not realised how easily it can be grown out-of-doors. As a botany student in the early thirties I see myself knocking on Mr Henwood's door and asking to be shown the ferns. I had become conscious that I had never really looked at a fern. The old man was delighted. Yes, yes, we must go and see the Old Lady. With his housekeeper running after him with his overcoat (Mrs Henwood had been dead for some years) he hustled me to where she sat, the Old Lady, at the far end of the small rectangular plot, screened from the elements by walls and hedges on four sides, on a raised bed, raised probably by many years' accumulation of leafmould (a good grade of oak leafmould bought regularly from Taylor's), overhead a canopy of sacking to keep the tiresome summer sun from spoiling her complexion. Her name, according to the meticulously kept record which Percy Greenfield (Dr Stansfield's son-in-law) later lent me, to copy, was *Polystichum angulare* 'Plumosum foliosum', raised by H Stansfield. There were other plumosums there, but this was the queen. She added to her charms by being slightly fertile. One way and another there were well over two hundred named varieties there, from some two dozen species. The polypodium collection in the small unheated glasshouse has been described in the Gazette. Everything was as neat and orderly, weeded and watered, nourished and labelled, as the caring hand of an old man could make it. If any wish to comment that a mere seventy-odd isn't really old, they should remember that in those days even the best doctor in Reading could do little for a man who had had a great deal of domestic anxiety and was already the subject of bouts of angina. The immediate result of that visit was that I became the only student in our group who could tell a lastrea from a polystichum.

We must jump now to the Autumn of 1935, by which time I had persuaded my father, much against his sense of what was fitting, that I should have a hand in the nursery. He had a bright idea: if I were put in charge of those tiresome ferns behind the bamboos it would keep me quiet and out of sight. Mr Henwood and the doctor were immensely pleased at the thought of recruiting a young conserver and distributor of their precious wares. They well knew how "good things" could be lost forever from carelessness, neglect through illness, or plain selfishness. Mr Henwood rallied his many friends and all the generosity and enthusiasm which we like to think of as typical of Fern Society Members was put at my disposal. He himself gave me about forty different polypodies, fully labelled. The doctor weighed in with large clumps of that *P. vulgare* "Omnilacerum" which he had spotted years before in the Oxford Botanic garden, a tray of seedlings of *P. vulgare* "Grandiceps Cowan" and many trays of other rarities from that little greenhouse of his. Robert Bolton came over from Birdbrook and later sent propagating material from his famous collection of hartstongues. Mr Sheldon wrote from Great Bookham offering spores. Mr Lovelady wrote from Haslingden offering to sell me his collection "en bloc". When, after visiting him, I felt unable to purchase it, he sent me a gift parcel of choice items. And so it went on. But it was not to last long. Early in 1938 Mr Henwood and the doctor died within a few weeks of one another. Clouds were gathering. Looking back, it was a mercy that they were spared the experience of a second World War, numbering amongst its many sacrificial victims the eclipse of ornamental horticulture. When the lights went out all over the world the two friends were already asleep and at peace.

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NOTES ON THE OCCURRENCE OF THE SUBSPECIES OF DRYOPTERIS AFFINIS IN BRITAIN

C N Page

This article results from a wet morning on the Chard field meeting this year (see the account by Jimmy Dyce), when I found myself called upon to give an impromptu talk on what had happened taxonomically to the Golden-scaled Male-fern (now *Dryopteris affinis*, formerly *D. pseudomas* and *D. borreri*). The talk resulted from my pointing out in the field over the previous days, differences between subspecies to a vocal, if slightly horrified audience!

I claim little origininality for the taxonomic content of what comes next although I and others had long seemed to feel the need for it. I have, however, added my own field observations as far as certain characters and the general ecology and distribution of the subspecies in Britain are concerned. I also apologise in advance for the labour pains which are bound to be brought about by the introduction of new names, to members who may only just have been congratulating themselves on separating the Golden-scaled Male-fern from the Common one. I will try, however, to make it as painless as possible.

Since the nineteen-thirties at least, when extensive studies were made by von Tavel, it has been recognised that plants of the Golden-scaled Male-fern group differed substantially between populations. More recently, further work, especially by Schneller and Fraser-Jenkins, has helped to clarify the taxonomic situation arising. Although a large number of subspecies have now been reported in Europe, only three so far have been recognised in Britain, although perhaps this is just the beginning of the story here!

At the Brathay (Windermere) joint BPS/BSBI meeting last year, I was fortunate, with others, to have a chance to compare my interpretation of the native plants in the field with that of Jacob Schneller, and I found that home-matured and Continental views of what plant was called what and how they differed, equated well. I have thus now tried to apply these concepts more widely in the field in Britain, to gain an impression of the range and ecology of the subspecies in question — but first, the plants.

All plants of *D. affinis* have in common that they are more scaly on the stipe than *D. filix-mas*, and have the black patch at the base of each pinna where it joins the rachis. But in most other characters, the three British subspecies differ in degree.

Subsp. *affinis* which, for want of anything better, I have christened Yellow Golden-scaled Male-fern, is the most extreme in appearance. It is the most glossy-fronded form, most yellow-green when flushing but deepest green when mature, with the narrowest, most regularly-cut pinnae. It has the most truncated segments, with the least conspicuous teeth. The fronds are usually fairly compact and have the most narrowed outline towards the base of the blade and the shortest stipe, and the stipe has the densest, most golden-coloured scales of all the subspecies.

Subsp. *borreri* (Newman) Fraser-Jenkins, Common Golden-scaled Male-fern, is of somewhat lesser extreme appearance. It is less glossy-fronded than subsp. *affinis*, with a less deep green colour when mature. It has slightly wider pinnae, with the apices of the segments varying from fairly abruptly truncate to roundly truncate or obtusely rounded. But mostly they appear more rounded than those of subsp. *affinis*, and have more prominent teeth. The fronds vary from compact to large and the overall frond outline is less narrowed towards the base. The stipe is of variable length, but usually longer than in subsp. *affinis*. It is somewhat less densely scale-clad, and the stipe and rachis scales are less shining and less golden than in subsp. *affinis*, and of a paler and more mid-brown colour. Scales of those seen on the Chard meeting had become a dull pale brown with dark bases by mid-August.

Subsp. *robusta* Oberholzer et von Tavel ex Fraser-Jenkins, Robust Golden-scaled Male-fern, is the least extreme and the largest plant, looking intermediate between *D. affinis* and *D. filix-mas* in appearance, and hence looks much like *D. X tavelii* with which it can be easily confused without technical confirmation. It is, however, more common as populations than the hybrid. It is the least compact, least deep-green coloured and least glossy-fronded form of *D. affinis*, its large fronds usually with long stipes and long pinnae, and a blade outline which does not taper very markedly towards the base. The pinnae are the broadest and most widely spaced, and their segments more auriculate at their bases and more tapering towards their apices than in the other two subspecies.

The exact distribution and ecology of the different subspecies in Britain are very imperfectly known and must await detailed study. However, it seems likely that all the subspecies are fairly widespread and follow the general pattern of the species in being most frequent in western oceanic climates. Some subspecies seem more restricted than others, and although there is some ecological overlap, there are also some distinct differences in their main habitats.

Plants of subsp. *affinis* seem to occur most often in open conditions amongst the lower hillsides and valleys of more mountainous parts of Britain, such as the western Scottish Highlands, the English Lake District and North Wales. In such areas they usually grow over exposed, steep, well-drained hillsides, usually in acidic situations where there is a thin peaty covering over old semi-stable scree slopes. In such situations they can grow in local profusion, sometimes forming large, nearly pure, stands. Their rhizomes branch fairly freely, and eventually build up large, multi-crowned clumps. Their fronds seem later – flushing one to two weeks after those of subsp. *borreri*, seldom beginning to expand much before the beginning of June, when the fronds of subsp. *borreri* are already about half-expanded. Although such plants can ascend to considerable heights on mountains, they seem particularly characteristic of the lower parts of mountain glens in parts of the west Scottish Highlands where their late-flushing fronds in early summer produce extensive bright golden-green patches along the lower parts of valleys and extending up screes. This is the most likely of the subspecies to be found growing nearby the Parsley Fern, *Cryptogramma crispa*, and its native geographic range seems not dissimilar from this species.

Plants of subsp. *borreri* occur frequently and usually much less locally in a very wide range of habitats which closely parallel those of *D. filix-mas*. Their habitats include open rocky places, stream valleys, roadside banks and woodland of a wide range of types. From such habitats plants readily spread to establish often in old brickwork in cities, railway lines around canals and in disused industrial areas. They also commonly grow in coniferous plantation woodlands along tracks and rides, and along the well-drained sides of gullies and ditches. Although apparently the most abundant subspecies, plants seem much less gregarious than those of subsp. *affinis*, occurring more often as scattered individuals, with rhizomes less branching and seldom building up such massive, or such old clumps. Their fronds flush about two weeks earlier than do those of subsp. *affinis*, and because they are less golden and less gregarious, seldom have such an impressive effect on the eye. Their occurrence in such a wide range of habitats from old mortar to fairly acidic forest suggests they tolerate a particularly wide range of pH conditions, and their frequent occurrence with *D. filix-mas* suggests that they may be the most common *D. affinis* parent of the pentaploid hybrid *D. X tavelli* (q.v.).

Plants of subsp. *robusta* are usually prominent in the field by their particularly large sized fronds (much larger than the other two subspecies and often 150 cm or more in length). They seem most often to occur on moister valley-bottom or moist valley-side conditions, especially in valley woodland, and perhaps in the generally least acidic conditions. They usually grow as rather solitary individuals, with rhizomes which are much more massive and stocky than the other subspecies, and they seem usually more erect and seldom, if at all, branched. The fronds thus tend to arise in the most regular, massive shuttlecock of all the subspecies, with plants usually much larger than even *D. filix-mas*, and comparable only with those of *D. X tavelii.* Subsp. *robusta* seems to occur mainly in southern and western Britain, as far north at least as Argyll, and becoming often the dominant form in sheltered woods of Devon and Cornwall. It seems to prefer the least acidic types of woodland, often growing on clays, most frequently accompanied by nearby Soft Shield-fern, *Polystichum setiferum.*

Generally, I have found the subspecies most easy to separate in early summer when the fronds are freshest and differences in flushing times are most apparent. But throughout the season, subsp. *robusta* can be seen to be the least extreme and most *D. filix-mas*-like, and subsp. *affinis* the most extreme and most *affinis*-like — a feature which prompted one of my field students in Scotland to name it, appropriately, "*affinis* the mostest".

All three subspecies can, theoretically, also cross with *D. filix-mas*, and probably do. I believe that all three crosses do occur in Britain and can be separated in the field. But that's another story ....

POLYSTICHUM SETIFERUM 'PULCHERRIMUM'

J W Dyce

Last year in the Bulletin I reported that one of our Editor's polystichum wild finds in the West Country had a look of the very rare variation 'Pulcherrimum' in its make-up. Fuller study of the plant now inclines us towards a less optimistic view, but my reference to this section of the variants in *P. setiferum* brings to mind the fact that very few of our members can know anything about this extraordinary unique break from normal growth which has got very little mention in our literature for a long time but has always intrigued knowledgeable fern hunters and growers from the time this variation was discovered over 100 years ago, right up to the present day.

In all, sixteen plants were found in the wild during the sixties and seventies of the last century, nine of them by Moly, but only a few were of permanent or constant character. Several more were raised in cultivation, both from spores and prothalloid growths, but with one exception their lives were short and no more have ever been found. In this variant the effort to achieve the extreme heights would seem to have proved to be too exhausting, for some of them reverted permanently to the normal species form while others would throw up, very occasionally, a single frond or more often only a few pinnae, in character.

Possibly, their unstable nature explains why they have been found so rarely, since in the wild, as well as in cultivation, they probably only show the *pulcherrimum* quality infrequently, and this at time when no fern-man, familiar with them and likely to spot them, is within finding distance. On the other hand, it has to be remembered that during the period when they were found fern-hunters were fairly thick on the ground and purposely looking for them, and a plant, or more probably only a single or part frond, exhibiting the distinctive character was so noticeable that it could not possibly have been overlooked. The lower pinnules, and sometimes the upper ones, were greatly extended, curved like sickles and divided into fine segments, making them look like small curled feathers and giving the fronds a peculiar foliose and extremely graceful appearance. They were indeed well-worth a patient wait to see them in their full glory. Under close culti-

Polystichum setiferum
'Pulcherrimum Thompson'

vation the pinnule divisions could be drawn out into fine thread-like points spreading out into prothalli at their tips (apical apospory).

The names associated with 'Pulcherrimum' are Padley, Mrs Thompson, Wills and of course Moly, and their finds were named after them, but even the best of them were inconstant and those that did survive for any length of time gradually became more and more confirmed in their reversal to normal *setiferum.* There was only one exception, 'Moly's Variegatum', which was one of two mentioned by Dr F W Stansfield as being still alive in 1911. Although the *variegatum* apparently did not last much longer it merits a description here. Both its pulcherrimum and variegated characters were constant. The young fronds were normal green in colour but when fully developed the upper pinnules turned a pale yellow which deepened to a rich orange in the autumn while the lower ones remained a vivid green throughout the growing season. The green remained to some extent in the veining of the upper variegated parts to give a fine pencilling effect. Unfortunately, with age the plants became ragged and depauperate in the upper halves of the fronds while the lower parts retained the pulcherrimum distinctness.

The only other survivor in 1911 was 'Moly's Green', another of Moly's nine finds, and it is still with us. Unlike all the others it is a strong grower but, unfortunately, has a habit of developing a multiplicity of crowns which can effectively prevent it from growing to any size and showing its true qualities, for like the others it is inconstant and only when well-grown as a single crown to attain a good size is it likely to demonstrate, albeit very grudgingly, its true worth. Only twice, in plants which have been grown well, have I seen exhibited a single frond showing the full pulcherrimum character. The variety which must now be exceedingly rare in gardens, obstinately preserves a near-normal appearance but there is always a subtle quality about the pinnules which enables the fern-man who knows it well to recognise this unique variety.

It is 100 and more years old now and it may be old age which makes it obstinate, for Dr Stansfield found it always produced at least one or more fronds in character. On one occasion, after growing the fern for 25 years, one of his plants which he thought was one received as a bud or crown sport from the original find, produced fronds which were *all* in character and this behaviour continued for several years. His son-in-law Percy Greenfield received a selected offset from this improved plant but with him it did not behave so well and varied from very good to almost normal *setiferum.* It is interesting to add that in the fullness of time this plant was passed on to me by Greenfield but has behaved no better. It grew well for many years as a near-normal *setiferum*, occasionally throwing up a frond partially in character. It multiplied so well that I was able to distribute it widely through both my own efforts and those of Reginald Kaye to whose nusery I sent several crowns. Then my plants fell on evil days, they all started to sulk and, in spite of all my efforts, in due course dwindled and died. But the wisdom of giving away a good plant if you want to keep it was exemplified in this case, for our Spore Organiser, Dick Cartwright, who has a flourishing specimen grown from one of my offsets, was able to give me back two crowns. Worried about the fate of the variety which can be in the hands of only very few fern growers who know it for what it is, I sent one offset back to its native West Country where it is now growing well in a Somerset garden. My offset is also growing well but so far without the tendency to multiply its crowns.

Can the variety 'Pulcherrimum' ever be found again in the wild? In 1911, Dr F W Stansfield wrote ' "Fern hunters, wake up! It is now over 20 years since a pulcherrimum was found wild. The womb of Nature is inexhaustible and the seventeenth find may surpass any of its predecessors". Another *seventy* years have passed since he wrote those words and still we have not found the seventeenth *Polystichum setiferum* 'Pulcherrimum'!

SURVEY OF VARIATION IN BRITISH POLYPODIUMS – AN INTERIM REPORT

Martin Rickard

Over the past twelve months Jimmy Dyce and I have cajoled many members into parting with samples of their polypodium varieties with a view to compiling a catalogue of varieties still in cultivation.

It has been a rewarding exercise and some statistics may be of interest.

The survey began with a lengthy examination of Robert Bolton's magnificent collection in Essex. From there it moved on to examine fronds or plants from a further 32 different sources, mainly BPS members. As a result an extensive herbarium of over 230 sheets has been formed and I have gathered together a living collection of about 130 different clumps representing about 40 different varieties, but hopefully more!

Early on in our survey it became clear that identification within broad groups is usually possible with plants of any age grown under any cultivation conditions. When more precise identification is required plants often need to be well grown. This is particularly true when trying to separate the various 'Cambricum' forms. The herbarium specimens are therefore useful but rarely good enough to allow certain identification of named forms. To add to these difficulties documentation in the past has often been imprecise. For example the 'Cromer' variety of 'Cambricum' received the Society's Certificate of Merit in 1922, but what did it look like? Macself in *Ferns for Garden and Greenhouse* gives a photograph of what is claimed to be this form but it looks like normal wild type 'Cambricum' to me.

In due course, as part of this survey, I hope to be able to allocate each cultivar to its correct British species or hybrid. Provisional estimates suggest that 66% of varieties are of *P. australe* origin and 34% from *P. interjectum*, while so far none have been identified as *P.vulgare.* This position may change but it is ironic that all forms have always been known as *P.vulgare* in the past!

The following list is an outline of those varieties I have been able to find still in cultivation. It is very much a provisional list.

I have divided the varieties into 7 sections. Following each varietal name is a very brief description followed by a statement of my confidence in the identification of the fronds or plants I have seen. An * denotes those varieties growing in the live collection.

SECTION 1: 'Cambricum' i.e. plumose forms, bipinnatifid, sterile.

1* 'C.Welsh form': original form – certain.
2* 'C.Hadwinii': narrow frond with blunt segments – probable.
3* 'C.Oakleyi': dwarf form – probable.
4* 'C.Whilharris' (or 'Wilharris'): broad crisped form – possible.
5* 'C.Barrowi': broad form with long pinnae segments – probable.
6 A.N. Other: from Kildare, small form with short pinnae segments – certainly different but possibly not a true 'Cambricum'.
7* A.N. Other: very fine form, fronds produced later than 1, 2, 3 or 4.

SECTION 2: 'Pulcherrimum', regularly bipinnatifid fertile forms.

8* 'P.May': dark green, fairly dense form – probable.
9* 'P.Addison': lighter green, more open form, almost tripinnatifid – probable.
10* 'P.Trippitt': as yet a young plant but apparently dwarf, probably distinct – certain.
11* 'Pulchritudine': dense form with concave fronds – possible.

12* 'Hadwinii sport': reversion of 'Cambricum Hadwinii', pinnae segments shortish and broad — probable.

13* 'Pluma': very dense form, particularly in mid-part of frond — possibly 'Pluma'.

SECTION 3: 'Omnilacerum', large and fertile, irregularly bipinnatifid along the whole length of the frond i.e. lacerate.

14* 'O.Oxford': tips of pinnae segments acute, segments often longest at base of pinna — certain.

15* 'O.Aldreni': as above but often truncate — possible.

16* 'O.Bennett': pinnae segments of more or less equal length all along pinnae — possible.

17* A.N. Other: pinnae undulate with broader blunter segments — possibly different from 14.

18* A.N. Other: form with deeply lacerated pinnae — possibly a 'Semilacerum'.

SECTION 4: 'Semilacerum', fertile, bipinnatifid for usually only half of the length of the frond.

19* 'Falcatum O'Kelly': pinnae falcate, a gem — certain.

20* Normal 'Semilacerum' form: as illustrated in *Hardy Ferns* by Reginald Kaye — certain.

21* 'S. Chudleigh': wild find 1981, most pinnae regularly bipinnatifid, frond perhaps narrower than 20 — certain.

22* 'S.Buckfast': wild find 1979, pinnae irregularly bipinnatifid — certain.

23* 'S.undulatum': tall, broad, densely lobed form with pinnae undulate — probable.

24* 'S.undulatum dwarf': as above but small — possibly distinct.

25* A.N. Other: pinnae segments short, broad and subimbricate — distinct.

SECTION 5: 'Cristatum', fertile forms with frond or pinnae branched, bifid or crested. (See also Section 6 for 'Cornubiense' forms and No. 46 below.)

26* 'Bifido-grandiceps': about 90% of pinnae bi- or trifid, head crest flat and broader than frond — certain.

27 'Palmatum': pinnae tips palmate — perhaps same as 26.

28 A.N. Other: with only about 50% of pinnae bi- or trifid, head crest flat. approximately equalling width of frond — probably different.

29* 'C.Perry' (syn. 'Old form'): pinnae and frond tip 3 dimensionally crested — certain.

30* 'C.Trippitt': a recently raised gem. A small form with *all* pinnae tips flatly but heavily crested — certain.

31* 'Glomeratum': a compact, variable, branched variety with some pinnae bifid — probable.

32* 'Bifidum': basal pinnae bi- or trifid, no terminal crest, not uncommon in the wild — certain.

33* 'Ramosum Grange': frond branched several times — certain.

SECTION 6: 'Cornubiense', fertile types with fronds usually sub-tripinnatifid often reverting wholly or in part to normal.

34* 'Cornubiense': basic type, a robust vigorous plant — certain.

35* 'C.Stableri': large foliose selection — possible.

36* 'C.Multifidum': pinnae tips bi- or trifid, sometimes frond tip flatly crested — certain.

37* 'C.cristata': crested form with head crest narrower than frond — probable.

38* 'C.grandiceps': crested form with head crest broader than frond — possibly the same as 37.

39* 'C.trichomanoides': finely divided quadripinnate form, a gem — certain.

40* 'C.trichomanoides Jean Taylor': a variable dwarf form, a finely divided multifid gem — certain.
41* *Polypodium xSchneideri*: a hybrid between 'Cornubiense' and *Phlebodium (Polypodium) aureum* — only 50% a *P. vulgare* agg. variety! Not hardy but when well grown a magnificent plant resembling a large 'Cornubiense' — identity certain.

SECTION 7: Minor forms, all fertile.
42* 'Serratum' : pinnae margins sharply toothed, fronds narrow, common in wild — certain.
43* 'Macrostachyon': frond broad and regular except for long caudate terminal section — certain.
44* 'Caudatum': as above but frond narrower and of irregular width — probable.
45 'Longicaudatum': perhaps same as 44 but this is a form with a much longer terminal section.
46 'Caudatum Coughlin': as yet a young plant with frond tip crested and some pinnae bifid — hopefully constant.
47* 'Acutum': pinnae terminate in drawn out points, common in wild — certain.
48* 'Crenatum, broad form': pinnae margins round toothed, a *P.australe* form — probable.
49* 'Crenatum, narrow form': as above but frond narrow, probably a *P.interjectum* form.
50* 'Crispum': wild find 1980, pinnae twisted and somewhat crenate — certain.
51 'Irregulare/Variabile': a large coarse form with some pinnae bifid, some fronds branched with pinnae often serrate, not uncommon in the wild — certain.

Several of the well known named varieties from the past are notable by their absence from this list. Those that I would particularly like to locate are:— 'Cambricum Prestonii', 'Grandiceps Fox', 'Grandiceps Forster', 'Grandiceps Parker', 'Semilacerum grande', 'Serra' and 'Congestum cristatum'. Any news of these would be most welcome, as would any news on any of the varieties marked above as only 'possible' or 'probable'.

I would also appreciate the chance to examine collections of polypods I have not seen, or seen fronds from, in the past twelve months.

Footnote: Since writing the above I have found 'Grandiceps Forster' alive and well at Oxford Botanic Gardens. Also I have just realised that number 44 — 'Caudatum', and probably numbers 45 and 46 belong to *Polypodium glycyrrhiza,* and are not therefore varieties of a British fern.

THE OCCURRENCE AND CONTROL OF WOODLICE ON DICKSONIA ANTARCTICA

A R Busby

Recently I noticed a sudden and very alarming infestation of woodlice *(Oniscus asellus)* on the stem of a large tree-fern.

These land-living relatives of aquatic crabs, shrimps and lobsters are common pests in the garden. They prefer moist dark places such as the underside of stones or logs. They are scavengers, eating almost anything in reach but they are particularly partial to dead wood and leaves. Their life-cycle is such that they can produce over 100 broods in a year, their normal lifespan being just over a year.

Woodlice had been noticed in the fern house during last winter but I considered them merely of nuisance value. The first signs of trouble on the tree-fern appeared as deep depressions in the compact living roots which are produced from around the persistent frond bases of the stem. Soon after, major damage was noticed as the usually secure frond bases became loose and dropped off.

Part of the recommended husbandry for tree-fern cultivation is regular hosing down of the stem to ensure that the roots are kept constantly moist. During this operation, the hidden pests become obvious as the large adult woodlice are washed out of the stem roots, only to quickly return to continue their destructive attentions.

The stems of dicksonia are erect rootstocks, relying solely on the strength of their steles or conducting tissue for support. It is this material that the woodlice were attacking and, if left uncontrolled, would surely result in the collapse of the entire rootstock and loss of the fern.

Fortunately, their control proved simple. 3-4 liberal applications of 'Py Powder' (a safe insecticide containing pyrethrum and piperonyl butoxide) from a puffer-pack, on to the stem, over a period of two weeks removed the problem.

('Py Powder' is made by Py Spray Co Ltd, 21 London Road, Great Shelford, Cambs.).

Footnote: Further reading describing the effects of woodlice infestation on British ferns will be found in "Woodlice among ferns" by F W Stansfield, British Fern Gazette, Vol. 6, No. 8, page 211.

REVIEWS

THE FERN GENUS DAVALLIA IN CULTIVATION (DAVALLIACEAE) DAVALLIA RELATIVES IN CULTIVATION: ARAIOSTEGIA, DAVALLODES, HUMATA AND SCYPHULARIA (DAVALLIACEAE)

by Barbara Joe Hoshizaki. Two papers in Baileya, a journal of Horticultural Taxonomy, Vol. 21, No. 1, May 1981. L H Bailey Hortorium, Ithaca, New York.

I have just received a copy of the above journal containing two papers by Barbara Joe Hoshizaki. Davallias are popular with indoor fern growers, but there is a lot of confusion over their names, both in this country and, according to the author, in the USA. Her papers filling all 52 pages of this issue of the Journal, deal with 17 species plus several cultivars, all depicted in silhouette, with botanical descriptions, where found and some cultural notes. The author is not only a botanist but a fern grower, and these papers contain much useful information for the davallia enthusiast.

Single issues of the Journal can be obtained from L H Bailey Hortorium, Mann Hall, Cornell University, Ithaca, New York 14853, USA for dollars 1.25*. I am hoping to acquire a small number of copies for Booksales and will supply them, *while my stock lasts,* for £2.25 each post free.

* Latest information from the publishers shows this figure to have more than doubled.

FERNS FOR YOUR HOME by Thomas Cayford. Brombacher Books, Richmond, California. 21mm x 13.5, 158 pages, 1977.

This American paper-back is very informative and well illustrated in colour. The book has been written with a lot of expert and very practical knowledge in relation to the care and culture of ferns for the home. It goes into fine detail of how to choose and take care of your ferns, and has a very good chapter on ailments and pests, with illustrations of their actual and enlarged sizes.

Part two of the book is a directory, it describes the ferns and their requirements.

R Coughlin

NOTES ON SOME EVERGREEN FERNS HARDY IN BRITAIN

Graham Stuart Thomas

The light green of the unfurling fronds of ferns in spring and early summer presents them in their most exciting phase. During the summer we take them for granted, using their greenery as a delicate foil for other plants, but when autumn comes the evergreen kinds assume a greater importance, their rich green showing up against the ground covered with yellowish leaves. We are fortunate that many ferns which are hardy in England are also evergreen, or nearly so. At the end of the winter some even of the partially evergreen species begin to look spent and ready for a rest. In winter we clutch at all manner of little bulbs, hellebores, mahonias, viburnums, witch hazels and the like which come into their own with many evergreen shrubs and plants directly the deciduous trees and shrubs have lost their leaves, and it is then that the evergreen ferns reveal themselves as important garden plants. Their green is dark, and almost entirely matt, contrasting with the glittering leaves of hollies and laurels, and of a definite shape contrasting with the dense mass of conifers.

Members of this Society will be aware that ferns, being in the main woodland plants, appreciate plenty of humus in the soil; even so all kinds seem not to object to limy soils except *Blechnum* and *Thelypteris.* They are therefore admirable plants for use in almost any garden so long as it is not on pure clay or chalk — unless abundant peat or compost is available — and add a variety of greenery to any garden scene. On the whole they grow best in cool, partly or fully shady places but, some species will put up with quite dry positions, such as polypodiums, *Polystichum setiferum* and some species of *Dryopteris.*

In this little survey I will call attention to the largest and most handsome first, and I think there is no doubt that *Blechnum chilense* should take this pre-eminence, being the most substantial. In moist ground its great fronds will often achieve 3 ft., and are extraordinarily handsome, arching and divided into wide pinnae, crinkled at the edges. In very severe winters I have known it to lose the centre of its biggest crowns, but its spreading rootstock will always produce more. It is a native of South America, Chile in particular, and is found in many great gardens in the South West under the erroneous name of *B. tabulare* or *Lomaria magellanica,* closely related species.

In gardens in Cornwall and equally favoured places the huge arching and semi-prostrate fronds of *Woodwardia radicans* may be seen, bipinnate and perhaps as much as 6 ft. long; the tip of each bears a growth-bud which forms an easy means of increase.

We may next take the species of *Polystichum* or Shield Fern. I think the most handsome and perhaps the tallest is *P. munitum* which I prefer to *P. acrostichoides.* The former is a native of Western North America and the latter of Eastern. Both are known as Christmas Fern or Sword Fern, but, while the former name is descriptive of their beauty in winter, the name of Sword applies more nearly to *P. acrostichoides* on which the spores are borne at the tip of the frond on pinnae which decrease in size, ending in a point. Few plants give me more satisfaction in winter than *P. munitum;* it is of very dark glossy green and its fronds are regularly divided into simple pinnae. In time both these species double and redouble the number of crowns and the early shuttlecock shape is thereby lost. This applies of course to all ferns but certain species of *Polystichum* are so particularly beautiful in their simple rosette form that side crowns are best carefully removed and started elsewhere.

The Soft Shield Fern, *P. setiferum (P. angulare)* is notable for its numerous forms which retain their freshness until late winter though their texture is less resistant and leathery than that of other species here mentioned. There are many bright fresh green forms in *P.s.* 'Divisilobum' and its numerous clones, but I will single out one very tough, hardy form, which will grow in dry positions even in full sun; it is *P.s.* 'Acutilobum'. It has long attenuated bipinnate fronds, very daintily divided, which makes a fascinating rosette of dark green. Its synonym, *P.s.* 'Proliferum', calls attention to the fact that, in common with many other clones, it bears growth-buds in the axils of the pinnae, a ready means of increase. Of all hardy ferns it is one of the most dainty and best known, and will achieve 2 ft. in height and width. A closely related species, *P. aculeatum*, the Hard Shield Fern, is more glossy in its green; it is perhaps even more elegant, at times taller, and equally beautifully bipinnate. It reaches a very high elegance in *P.a.* 'Pulcherrimum' forms which should be sought, particularly 'Bevis', whose fronds are particularly smooth, even of silky appearance, and end in a long point. [These varieties are now known to belong to *P. setiferum*. See article in this issue by J. W. Dyce. Ed.] These are all natives of Britain and other parts of Europe but from the Far East comes *P. discretum (P. setosum)*, which has long been known but has never become common in gardens, and *P. tsus-simense*; both have specially glossy, dark green, daintily bipinnate fronds and achieve 2 ft.

One of the most striking and unusual ferns is the Japanese Holly Fern, *Cyrtomium falcatum*; its large, broad, holly-like lobes entitle it to its common name. Unfortunately it is only hardy in the south-west of our country, being often grown as a greenhouse plant. In sheltered gardens it may be tried and all care may be rewarded by its shining dark green fronds up to 2 ft. in height. Its close relative *C. fortunei*, also from the Far East, is hardy but is a much lesser plant, with smaller pinnae and lacking the dark glossiness of the former.

Species of *Dryopteris* are mostly only partially evergreen, but there is no more useful plant than the Male Fern, *D. filix-mas*, for almost any position in the garden, in sun or shade, dry or moist (and dry shade is one of the most difficult of conditions to cope with), but it looks tattered and dull by mid winter. Its near relative *D. affinis* (until recently *D. pseudomas* or *D. borreri*), is rather more resistant to the cold. In climates to its liking it will make magnificent clumps up to some 5 ft. with great woody stems a foot out of the ground.* Lovely though it may be in autumn, it is really at its best in spring when its fronds are in their brightest yellow-green. It can be picked out at a distance in the hedgerows in Cornwall as a consequence, while on the west coast of Scotland it is in places the commonest of all ferns. It is particularly effective as a neighbour to orange and yellow rhododendrons and azaleas. Only *D. wallichiana* surpasses it in elegance and brilliance of colour offset by its dark brown scaly stipes, but in my experience it is not so resistant to winter weather, though perfectly hardy as a plant. When we come to rather smaller species of *Dryopteris* which retain their greenery well through the winter, we should do well to remember the British native Hay-scented Buckler Fern, *D. aemula (Lastraea aemula)*, a pretty plant with arching fronds up to 2 ft., and one from China and Japan, *D. erythrosora*, whose boldly bipinnate fronds are rosy brown when young and pale glossy green later. The reverse of the frond is decorated with scarlet spore capsules, hence its name. This is yet a comparatively rare plant though it has been in cultivation for over a century in these islands.

The Hard Fern, *Blechnum spicant*, a native of the Northern Hemisphere including Britain, returns us to the simply pinnate leaves. They are dark green, smooth and somewhat glossy, borne fairly erect. It will grow in dry as well as in moist soil. As in *B. chilense* its spores are borne, not on the normal fronds as in all others I have mentioned, but on separate fronds carried erect in the centre of the crown. It needs lime-free soil, whereas our other excellent native, the Hart's Tongue Fern, *Asplenium scolopendrium (Phillytis scolopendrium, Scolopendrium vulgare),* will thrive even on chalk, in moist places. It is the exception to the rule in ferns, being goffered or frilled along the edges of the undivided but gracefully curved fronds. Some of the most frilled forms ('Crispum') are eagerly sought, also some whose rich green glossy surface becomes yellowish in full sunlight. There are many forms recorded, with misshapen and divided fronds which are best left to those who do not appreciate simple beauty.

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*as may be seen at Mount Stewart, Co. Down, a property of the National Trust in Northern Ireland

The Polypodies are excellent, low ground covering plants for shady positions, dry and moist; in fact they are remarkably resilient, often colonising mossy tree branches in our moister climates. In dry weather they curl their simply pinnate fronds to conserve moisture and open out again after rain. They are therefore to be recommended where a ground-cover is required in dry shady places. This common fern is native to the Temperate Regions, including Britain, and is usually known as *Polypodium vulgare,* though botanists distinguish also *P. australe* and *P. interjectum* with usually broader fronds. They all have the same uses in the garden. Two distinct and beautiful forms with bipinnate fronds of great elegance are known as 'Cambricum' and 'Cornubiense', first found in Wales and Cornwall respectively. In 'Cornubiense' a keen watch must be kept for fronds reverting to the simple, dull green of the type, which should be removed with their portion of the rhizome, since the reversion is dominant over the form. These polypodies come into growth in early summer, imparting a tint of spring greenery in June; it is important to cut away the old fronds in May otherwise an unsightly mixture ensues. It may perhaps be worth calling attention to two smaller forms 'Longicaudatum', whose dull green fronds end in a long tail, and 'Trichomanoides' which is even more beautifully divided than the Welsh and Cornish forms. These two dainties are also prone to reversion.
We return down the scale to another *Blechnum, B. penna-marina (Lomaria alpina),* a creeping species from New Zealand, but quite hardy in these islands, making a dense mat of dark green, simply pinnate fronds, only a few inches high. As with other species in the genus, separate fronds bear the spores. At Knightshayes Court,* Devon, there are several square yards of it, though portions suffered, and even died, in the dry summer of 1976. It is a rampageous coloniser when suited in shady moist places, and is a perfect ground-cover.

We are left with two little species which are admirable for decorating the rock garden, or troughs. *Asplenium trichomanes* with tiny pinnae and black stipes, and *A. ceterach (Ceterach officinarum),* with sinuate outline and rusty back. These are only a few inches in height and seem happy in any shady or even sunny corner, so long as there is some moisture; together with the even tinier *Asplenium ruta-muraria,* they grow in the mortar in walls in many parts of Britain.

Through these few notes I have tried to stress the diversity in size, outline and texture that is to be found in ferns. Apart from a few *Dryopteris* and *Athyrium* species, the Hart's Tongue and *Polystichum* forms, they are scarce in our gardens. They can add so much to general planting but have scarcely been "discovered" by garden designers, yet they can add a variety of outline unequalled by any other group of plants. Also through these notes I have avoided calling attention to the

*a property of the National Trust.

multifarious aberrant forms that have been named from time to time, and are apt to clutter our lists and minds to no real advantage. In very few cases can any of the abnormal forms be said to be of greater beauty than the species. It is to be hoped that as the years go by more hardy species from Japan and North America will be added to our gardens; fern culture in these islands has for too long been devoted to forms of our native species.

INSECTS ON FERNS

Presented by A R Busby

The following article concerning insect life on ferns appeared in the January 1981 edition of the Rural Preservation Association News, reproduced by kind permission of Gerald Dawe, Co-Editor.

Insects Don't Mind Ferns After All

It has commonly been thought that ferns support relatively few insects in comparison with other plants, perhaps due to toxicity or unpalatibility, but now this generalisation has been questioned.

M J Auerbach and S D Hendrix (Ecological Entomology, Vol. 5, pp.99-104) compared records of Macrolepidoptera (larger butterflies and moths) larvae feeding on 19 fern species with those occurring on over 600 herbaceous flowering plants. Butterfly and moth larvae were chosen for comparison because they are generally leaf-chewing insects and therefore exploit a resource common to both ferns and herbs. No significant difference in the mean number of supported species was found. However, when the flowering plants were divided into annuals, biennials and perennials a slight difference did emerge. Annual plants seem to support slightly more species than do biennials or perennials.

It was concluded that the poor insect fauna of ferns, as found by previous studies, has essentially been an artefact resulting from invalid comparisons between ferns and other plants.

The number of insects feeding on a particular plant species is determined amongst other things by "plant apparency" (the prominence and abundance of a plant amongst natural vegetation), predictability and architecture (for example, trees and shrubs have a more complex architecture [containing wood and bark] than do herbaceous flowering plants . Ferns are even simpler, possessing no flowers, seeds or woody growth – resources used by many insects exploiting flowering plants). Inadequate consideration of these factors, claim Auerbach and Hendrix, have been responsible for the common assumption that ferns support few insect species in comparison with flowering plants.

Of course, in many cases ferns do support fewer total species of insects than flowering plants but this is largely due to their reduced architecture and apparency rather than to any inherent toxicity or unpalatibility of ferns to insects.

Perhaps the above article will prompt some growers to write to the Secretary telling of their experiences with insects on ferns. I have observed a, as yet unidentified, caterpillar which defoliates my *Dryopteris spp* during the Autumn. I look forward to hearing from members who have further observations concerning insects on ferns. (Further details of the aims and membership of the Rural Preservation Association can be obtained from: The Rural Preservation Association, The Old Police Station, Lark Lane, Liverpool 17.)

SOME SMALL AUSTRALIAN FERN SPECIES THAT ARE HARDY AND WOULD POSSIBLY SUIT ENGLISH GROWING CONDITIONS (cont.)

Ray Best

Athyrium australe: (Aspleniaceae)

Now called *Diplasium australe,* known commonly as the Austral Lady Fern. Somewhat resembles a small tree fern, and can develop a short trunk with maturity; often in an enclosed fernery situation will remain a small plant. Otherwise its overall size would measure about one metre high by one metre wide. Reproduces readily from spores, if the situation suits this fern; often sporelings will develop adjacent to the plant in a natural manner. From Queensland, New South Wales, Tasmania and New Zealand. Tasmanians often call their small island This Other England or the Emerald Island; so I would assume this Australian species would survive well in England with average care.

Blechnum cartilagineum: (Blechnaceae)

Called the "Gristle Fern"; really a tough wiry and attractive fern even in an open full sun position here, excessive heat, cold and frost will only burn the existing fronds, and leave the crown to survive, to produce a new crop of fronds with the Spring. Even when aged fronds deteriorate they can be completely trimmed off without damage to the fern. Very long lived; even with a minimum of attention; young fronds emerge pink then change to a pleasant light green colour with rippled pinnae edges. Produces sporangia on mature fronds away from the crown, protected by twin linear indusias on either side of the midvein of the individual pinnae. One mature plant will give rise to many others from self sown spores if the situation is right. Widespread from the Phillippines to Northern Tasmania.

Blechnum nudum: (Blechnaceae)

Commonly called the Fishbone Water Fern, similar to the previous Blechnum in terms of its cultivation; extremely hardy. The essential difference being a simpler unrippled broadly attached pinnae or lobe (easily confused terms I would suggest). Frond structure resembles the backbone of a fish accounting for the common name. Another difference is in the formation of the fertile frond; which is produced from the centre of the crown; upright and narrow in formation. Sporangia develop on narrow pinnae; protected by tightly rolled twin indusia. Such fronds grow solely to reproduce the fern producing masses of spores, after which they collapse and die. Our early botanists, I feel correctly, separated the Blechnums into two groups; Blechnums with mature fertile fronds away from the crown. e.g. Blechnum cartilagineum; and Lomarias with the centre sporing frond. As such a difference in terms of evolution would take aeons of time I feel the separation was justified.

Cristella dentata: (Thelypteridaceae)

Previous names used for this fern were *Cyclosorus nymphalis* and the original Australian name "Binung". Fronds are pinnatifid about 100 cm. long with lobes very close together, somewhat of a grey green when mature; lobe tips are tooth-like as the title suggests. On mature fertile fronds sporangia are protected by a kidney shaped indusium. Spores are black bean shaped and extremely fertile. Quite an attractive fern easy to grow in Australia where it is widespread from Queensland to New South Wales, Victoria, New Zealand, reasonably tolerant of cold conditions.

MULCHING THE FERN BORDER

A R Busby

Several times in recent years, and 1981 was no exception, we have experienced long periods of dry weather. Between the 8th August and the 10th September I recorded only 13mm of rain at Aston here in Birmingham, and several field excursions during that period to the Welsh border country provided evidence of ferns in distress, particularly on walls, screes and in other open situations. Thankfully the weather broke on the 12th September, giving us a very welcome 14.5mm during that night.

So much for the vagaries of the British summer but this is little comfort to the hardy fern grower faced with the problem of watering his collection to prevent damage (Water Board permitting). Surely the answer is to prepare the fern border with the exceptional summer of 1976 in mind while hoping that we can enjoy fine summers and keep the ferns moist and happy.

The value of shade and regular mulching featured in conversations at Dr George Hearn's Open Day on August 29th, for his ferns appeared to be in the peak of condition in spite of the prevailing dry period.

Obtaining a good mulching material can be both difficult and expensive. Leafmould which, I suppose, is the obvious choice, is not always readily available. Sedge peat is very good but expensive and provides very little food value, and the old standby spent hops appears to be scarce. Some years ago, I was fortunate enough to have a regular supply of spent mushroom compost, but be careful with it as it contains ground magnesium limestone which can upset many of the acid-loving ferns. However, it did provide me with the bonus of fresh mushrooms from my small fern border.

Stable manure is frequently on offer in the more rural areas, often for just 25p a bag and I have seen it offered free it you collect it. Unfortunately it usually proves to be mainly straw and its potential humus content is small. But it's better than nothing even if it has to be stacked for a season or two. For those with a greenhouse, and an interest in potted plants, spent potting compost can be a valuable source of mulching material whether it is soil-based or soil-less and those old fibrous roots in it merely add to its value.

Whatever the material you obtain, the time and method of application is important. Ideally, mulching of the fern border should be done when the soil has reached its 'Field Capacity'. This is the condition where the soil retains its water contents after drainage of the surplus. In this condition the soil is thoroughly saturated but not water-logged. Any soil's field capacity depends on its structure or particle size and this can be improved with the addition of humus that will provide spongy water retaining material. This is particularly important to gardeners on sandy or gravelly soils.

We rely on the snows and rains of winter to bring a soil up to its field capacity, so mulching in late summer or autumn will prevent the rains from penetrating the soil to any depth.

Mulch the fern border in early to mid March, just before the ferns' new fronds gain any size. A liberal dressing 2-3 inches thick is ideal and do not worry about the material encroaching on to the fern crowns, they will push their way through it.
By ensuring that your mulching material is thoroughly wet and applying it when the soil is at its field capacity, you will be providing your ferns with a long-lasting reservoir of moisture to help through those long dry periods later, and you will be providing all the feeding your hardy ferns require.

One final point, it is conceivable that we could have a below average winter rainfall. In this case it is advisable to water the soil thoroughly before applying the mulch.

A BRIEF HISTORY OF THE AMERICAN FERN SOCIETY

Edgar M Paulton
(Fiddlehead Forum Factotum)

Four centuries after Colombus discovered America, four Americans discovered the beauty of ferns and decided to do something about it. Four members of the Agassiz Association (1) held a meeting in March 1893. There were no minutes and the exact location is unknown for there are no historical landmark plaques dotting the walls of any residence in Binghampton, N.Y. (2) where it took place. If such were to exist its inscription should say "In this building in the year 1893 the first meeting of the Linnaean Fern Chapter of the Agassiz Association took place", andit would be appropriately encircled with a bas-relief representation of fern fronds.

Since it is highly unlikely that there are any centenarians staggering around who might have attended the meeting and to whom we might appeal for corroboration, this is decidedly conjecture. What we do know however is that by mid-year the first issue of the Linnaean Fern Bulletin published by the Linnaean Fern Chapter of the Agassiz Association saw the light of day. The title was more pretentious than the publication itself for it was only a couple of stipes bigger than a postal card; it was announced as a quarterly, comprised eight pages and was obtainable for the munificient sum of Three Cents. For members (annual dues $ 1.00) it was available free.

The editor, and later, publisher was Willard N Clute, who by virtue of uncontrolled enthusiasm and diligence to the cause of ferns became the first president of the Linnaean Fern Chapter. Reading between the lines of this modest publication it becomes clearly evident that he was the spark and guiding light — the photosynthesis — that brought about the germination of the organisation in Binghamton.

By 1894, a Constitution was drawn up, officers elected and 24 members had been gleaned from halls of ivy, field and glen. For the next three years in the pages of the Bulletin, Clute begged, prayed, wheedled, cajoled, pleaded, importuned and even asked members to recruit members. This verbal sporangia floated upon the air of the New World and some of it fell upon fertile 'grey matter'. By 1896 the membership had grown to 46 with members in 17 States. Now, however, Clute resigned the presidency due to the pressure of other duties but continued as editor of the Bulletin. By '97 the Chapter had 75 members; not only was the membership growing but the publication was also enlarged — to 5¼" x 8" with 20 pages an issue.

For the next fifteen years Clute continued as its editor and publisher dispensing information to the world of fern lovers. The list of Officers and contributors contained more than a sprinkling of what later became taxonomic names (3) — a circumstance that continues to the present day.

In 1906 the Linnaean Fern Chapter rhizomes developed roots. Boasting a membership of 150 it elected to change its name to The American Fern Society.

At this time also Clute changed the center of operations through acceptance of a teaching position in Joliet, Ill. Constant demands upon his time and difficulties with new printers brought about delays in the publication of the Bulletin. Clute was publishing concurrently another magazine "*The American Botanist*" and by what appears to have been a process of combined self-hypnosis and wishful thinking he attempted in the Fern Bulletin to convince the membership that the Bulletin had fulfilled its purpose of educating if not the entire world, at least the New World, on the life and times of pteridophytes. He would now cease publication of the Bulletin when his contract with the

American Fern Society expired two years hence and incorporate whatever scant scraps of fern trivia might come along into "The American Botanist".

The membership, now over 200, took a dim view of what they appeared to consider high-handed, and when Clute refused to relinquish his right to *The Fern Bulletin* they voted for the Society to publish its own organ. In 1910 and for the subsequent two years members received both *The Fern Bulletin* and now *The Fern Journal.* Clute held forth with dire predictions of failure of the new publication through amateurism and accused both the secretary and treasurer of incompetence.

In addition to this little confrontation, the Fern World was in the throes of the controversy of nomenclature that was sweeping the Botanical World. Clute found himself at odds with the 'splitters' and while he published all their articles, as editor he had the last word which was, more often than not, in the form of acerbic criticism. This was not calculated to endear him to the membership at large. (4)

Within two years of its inception however the contributors who had been sending articles to other nature publications were back in full force with more articles than the Fern Journal was able to publish, and the publication itself was as fully professional as the *Fern Bulletin* had ever been.

Early in the history of the Society an herbarium was started; members from all over the country were asked to contribute fronds and a creditable response resulted so that by 1915 it boasted over 2200 sheets that were available to a membership of 255. Through the ministrations of a U.S. postal department whose couriers were not stayed in the swift completion of their appointed rounds (5) members were able to borrow specimens for study and consultation. Originally housed in the home of the curator it was later transferred to the Brooklyn Botanic Garden and eventually to its present resting place at the University of Michigan in the custody of Dr Warren H Wagner. Over the years however with many more books on ferns more easily available to the student, its use as a source of study and research has, for the most part, become local.

Another development was the institution of a library of fern books which also was housed at the Brooklyn Botanic Garden for many years and later transferred to the New York Botanical Garden in the Bronx, N.Y.C. Members were able to borrow books by paying all shipping and postage costs. Its value today rests largely with students interested in development of Pteridology over the years, and who wrote what, when. The number of fern books in libraries across the country today makes it of more historical interest than a source of study, although its bibliography covers all the latest publications.

The idea of instituting a Fern Society Garden was taken up in the early days of the Society and within a few years three fern gardens were flourishing in Cambridge, Mass., at Harvard U., Missouri Botanical Garden at St. Louis, and at the Brooklyn Botanic Garden in New York. These projects continued to prosper under the guidance of their promoters but the number today must run into scores, notable of which are Fernwood at Niles, Michigan, and the New York Fern Glen at the Cary Arboretum in Millbrook, N.Y.

From early days an annual fern foray was instituted under the direction of a local member and authority familiar with the species of the area. These forays were an adjunct of the annual business meetings of the Council and Officers, and generally comprised two days of field exploration. As a result of transportation difficulties and energy conservation this activity has actually been expanded to four or five forays in different parts of the country at different times thus making them available to a wider spectrum of members with fewer travel problems.

Early in the 1950s Dr R C Benedict of the Brooklyn Botanic Garden suggested a Spore Exchange to stimulate and encourage the growth of ferns; this project was undertaken by Kay Boydston and successfully organised until the development of her acreage (6) at 'Fernwood' demanded too much of her time. The task of running the American Fern Society's Spore Exchange was then taken over by Neill Hall, a retired engineer, who has conducted the service for the last twenty years. From a start of 100 packets the Spore Exchange has grown to a listing of 1268 different species constantly being renewed by members from all over the world and supplying an international clientele.

From the early days of the *American Fern Journal* all phases of fern research, discovery and exploration found an outlet in its pages, along with the Society's Officers' Reports, Notices, Activities, Membership and Editorial Notes. Over the years with the development of microbiology, cell and tissue culture, propagation, hybridization, etc., the Journal became increasingly scientific to the exclusion of material whose only contribution was to warm the cockles of the hearts of simple fern lovers. The membership gradually became more and more restricted to the professionals and the growth of the Society at around 600 members slowed to a tired snail's pace.

It was decided to present a second publication that dealt with the Society's business activities and reports, and with articles and notes of a more hedonistic appeal to the amateur student, gardener and horticulturist. The result was the "*Fiddlehead Forum*" now in its eighth year and with a mailing of around 1,800. In 1979, a third publication *Pteridologia* made its debut; its purpose to deal with treatises beyond the scope of the *Journal.*

If this brief historical sketch of the American Fern Society appears to be dominated by an account of the vitality of its publications it is because the publications are an essential part of the very existence of a loosely knit organisation that covers a continent and extends to all parts of the world.

(1) The Agassiz Association named after Louis Agassiz by Harlan Ballard was devoted to the study of the natural sciences; established 1875, incorporated 1892.

(2) Binghamton, N.Y. was chartered as a city in 1867, and had a population of around 12,000 in 1892.

(3) A A Eaton, W R Maxon, E T Wherry, R C Benedict, W N Clute, C A Weatherby, *et al.*

(4) By 1934 all was forgiven. Clute was made an Honorary Member of the American Fern Society.

(5) An inscription on the fascia of the New York City Post Office reads: "Neither snow nor rain, nor heat, nor gloom of night stays these couriers from the swift completion of their appointed rounds." (No mention of money is made).

(6) 100 acres disporting over 14,000 ferns – sixty-seven north-eastern species native to the U.S. and fifty-nine exotics.

THE AMERICAN FERN SOCIETY, INC

wishes to extend an invitation to readers of this Bulletin to join the American Fern Society. Regular members receive the "Fiddlehead Forum" six times a year. This newsletter is published for the benefit of those who are interested in growing ferns, hunting for them, and expanding their general knowledge of ferns. Journal members receive, in addition to "Fiddlehead Forum", the scientific quarterly "American Fern Journal". Membership costs $ 5.00 and $ 8.00 per annum, respectively. For particulars please write to Dr J E Skog, Dept. of Biology, Geo. Mason University, Fairfax, VA 22030, U.S.A. Prospective members residing in Great Britain should write to Nigel Hall, 3 Sydney Road, Bramhall, Stockport, Cheshire SK7 1NH.

VARIEGATED BRACKEN

J W Dyce

I have just received before we go to press, the following enquiry from our member, Mr Frank H Brightman, Chairman of the South London Botanical Institute –

"What do you know about variegated bracken (*Pteridium aquilinum)*? The other day someone brought to the Institute a portion of a frond of bracken which is truly variegated. Each pinnule is neatly divided, partly green partly yellow; I feel sure that there is not a question of it being spray damage, or the like. No one in the Fern Section at the Natural History Museum can recall seeing anything like it, or is able to suggest any reference in the literature. Have you seen variegated bracken? Were such plants cultivated in the past? Have you ever come across any reference to it? I shall be most grateful for any light you can shed on this matter."

It occurred to me that this would make an interesting short paper for the Bulletin. In reply to Mr Brightman's questions I had to say I did not know anything about variegated bracken. I had never seen any, nor did I know if it had been cultivated in the past. Offhand, I could not remember any such bracken being mentioned in fern literature. Neither C T Druery nor Dr F W Stansfield make any reference to it anywhere in their writings, as far as I can ascertain, but I did come across a reference to it in one of E J Lowe's books, to the effect that it had been found by one of our early members, W H Phillips, who lived in Co Down in Ireland. In one of our pre-Gazette publications appears a list by this member of his fern finds and among them is the record that he found several plants with *white* variegation along a roadside near Trassy Bridge in Co Down. (I wonder if it is still there? Perhaps some curious Irish member living within easy distance of Trassy Bridge could make some investigations and let me know.) As far as I can say, without a lengthy search through my large library of Victorian fern books, this is the only known instance of such a bracken variety being found in the past.

Have any of our members ever found such a variety? If so, I would be pleased to hear from them about it, enclosing a frond or part of a frond if possible. I should mention that *real permanent* variegation in any fern is very different from variegation by bleaching of the fronds from some external cause; this can frequently be seen in the wild, sometimes as whole or parts of fronds, or as just a few blotches of white. Most members should be able to recognise this kind of colour change, and true variegation, I think, should be obvious. However, if in doubt, send a frond.

I have asked Mr Brightman if he can supply me with further information about this find with, if possible, a frond.

SOUTHPORT FLOWER SHOW 1981

J W Dyce

I complained in my Report last year about the many empty spaces on the show bench. Alas! this year it was worse – one of our keenest supporters, Bob Trippitt, was very conspicuous by his absence. He had 9 entries last year and even then the bench was a bit bare. I hope Bob is not forsaking Southport; I know it is very expensive these days with escalating petrol costs, to move a van load of ferns to and from the Show, but we can ill-afford to lose such an outstanding exhibitor who always shows superb plants. The situation was partially redeemed by Alan Shellard, a new member to the Society, who had entries in 5 classes, and other new names noted were J Bromage, S McCracken and H C Shepherd.

On the whole the quality of the exhibits was good but in the large groups there was a little sun-burn on some of the plants. As usual, Noel Brookfield took a first prize with his group and retained our Society's Silver Challenge Trophy, but it was a close run with his son Rodney who came second. The third group was very poor and did not get a prize. Some very good ferns were staged in the other groups, and outstanding were fine specimens of *Athyrium filix-femina* 'Clarissima', *A. f-f.* 'Plumosum', *Adiantum raddianum* 'Kensington Gem', *Osmunda regalis* and *Polypodium australe* 'Cambricum Hadwini'.

The prize winners are listed below in order of winning –

Class 7 Group of hardy ferns arranged naturally in an area not exceeding 100 square feet.
J Brookfield and Son, R F Brookfield, W W Howarth – no prize. (3 entries)

Class 8 Six hardy British ferns (dissimilar)
J Brookfield and Son, R F Brookfield (2 entries)

Class 9 Six greenhouse ferns (dissimilar)
J Brookfield and Son, B Russ (2 entries)

Class 10 Three hardy British ferns
J Brookfield and Son (1 entry)

Class 11 Three foreign ferns, hardy in Great Britain
J Brookfield and Son, B Russ, R F Brookfield, A Shellard – no prize (4 entries)

Class 12 Three scolopendriums
J Brookfield and Son, A Shellard (2 entries)

Class 13 Three polypodies
J Brookfield and Son (1 entry)

Class 14 Three polystichums
J Brookfield and Son, A Shellard (2 entries)

Class 15 Three athyriums
No first, J Brookfield and Son, R F Brookfield (2 entries)

Class 16 Three dryopteris
J Brookfield and Son (1 entry)

Class 17 Three plants gymnocarpium, phegopteris and/or thelypteris
J Brookfield and Son (1 entry)

Class 18 Three aspleniums, excluding *Asplenium scolopendrium*
B Russ, H C Shepherd (2 entries)

Class 19 One British fern
A R Busby, A Shellard, H C Shepherd, J Brookfield and Son – no prize (4 entries)

Class 20 One greenhouse fern
J Brookfield and Son, A R Busby, A Shellard, J Bromager — no prize, S McCracken — no prize (5 entries)

The British Pteridological Society Trophy
J Brookfield and Son

The Judge was Mrs Hazel Key of Fibrex Nurseries who informed me that the best entry in the fern classes was by Brian Russ in Class 18 for three aspleniums. His three plants, *A. ceterach, A fontanum* and *A. trichomanes* were magnificent specimens, superbly grown, and fully deserved this commendation. Unfortunately, there is no prize at Southport for this distinction.

IMPORT AND EXPORT (PLANT HEALTH) (GREAT BRITAIN) ORDER 1980

A R Busby

Recent legislation has tightened up the restrictions on the movement of plants between countries and as members are increasingly travelling abroad and taking the opportunity to acquire ferns or other plants for their collections, they should be aware of the regulations.

Phytosanitary Certificates

Whether you intend to bring plants back from the country you are visiting or to send or take plants from the United Kingdom abroad, you will require a Phytosanitary Certificate. This is a certificate 'relating to plant health' and to obtain this certificate, the plants will have to be examined by a Plant Health Inspector. He will need to know how and where your plants were grown or obtained. If he is satisfied that your plant material is healthy, he will issue a certificate. This certificate will have to accompany your plants so that it can be inspected by the Customs and Excise of the receiving country.

However, there are a few exceptions; the following plants can be imported without a Phytosanitary Certificate from Europe and the Mediterranean Area only.

(A) (i) Two kilograms of plant material (e.g. bulbs, corms, etc.) (no restrictions on seeds or spores)
    (ii) Five plants or parts of plants except; Chrysanthemum, apple, cherry, pear, plum, and their ornamental species intended for planting or propagation.
(B) A small bunch of cut flowers (except Gladioli from Malta)
(C) Two kilograms of plant produce, i.e. apples, pears, lemons, etc.

There are no concessions for potatoes, forest trees (including Bonsai or ornamental varieties).

I have a limited number of pamphlets called 'What you should know about Plant Import Regulations'. If any members would like a copy, please send a 9" x 5" stamped addressed envelope to the Hon. Gen. Secretary, A. R. Busby. For the name and address of your nearest Plant Health and Seeds Inspector, or for any further information, write to; Ministry of Agriculture, Fish and Food, Plant Health Administrative Unit, Eagle House, 90-96 Cannon Street, London EC4N 6HT., or in Scotland; Dept. of Agriculture and Fisheries for Scotland, Chesser House, 500 Gorgie Road, Edinburgh EH12 7AT.

Conservation Licences

Certain types of wild plants can only be imported if you have a conservation licence, which is issued by the Dept. of the Environment. These controls are to aid conservation of certain species of plants including some Cacti and Orchids. Interestingly, the only fern families mentioned in LIST 'A' Endangered Kinds or LIST 'B' Vulnerable Kinds are *Cyatheaceae* and *Dicksoniaceae.*

For further information concerning the Endangered Species (Import and Export) Act 1976 write to: Dept. of the Environment, Wildlife Conservation Licensing Section, Tollgate House, Houlton Street, Bristol BS2 9DJ.

Finally, a word of warning; if you intend either to send plants abroad or to bring plants home with you, do ensure that you have a Phytosanitary Certificate for them to show the Customs and Excise. Without it your plants will be *destroyed.*

FERN RAMBLINGS

Richard Rush

I toyed with the idea of submitting a comparitive checklist of nursery prices for hardy ferns to the editor, but so many nurseries now sell a few ferns that a great deal of space would be required merely to put across that the fern consumer almost invariably gets a better deal, as well as greater choice, from the specialists. Which you realised already. But still I think it might be placed on record that, in the nursery catalogues I checked, the price range for *Asplenium trichomanes* is 55p to £2.59, for *Matteuccia struthiopteris* 75p to £4.05, for *Blechnum spicant* 55p to £3.55, for *Polystichum aculeatum* 75p to £3.15. One nursery offers *Dryopteris pseudo-mas* 'Cristata' ('the King') for no less than £5.95. Any advance on that? Of course no account is taken of the relative sizes of plants sent out — but just how big can a £2.59 *A. trichomanes* be?

In the introduction to a rather good seedman's catalogue the use of "those apparently unpopular Latin names" is justified on the grounds that "the name is used throughout the world" and "the plant only has one Latin name". If only it were so. If there is a fern which only has one Latin name (and I doubt it), which name is used throughout the world, it's a safe bet that such an oversight will sooner or later be rectified. Someone somewhere may at this moment be working on it. The trouble is that looking for possible errors, of one kind or another, gets to be addictive. For example, why on earth should *Asplenium adiantum-nigrum* be so called? The name would seem more appropriate for *A. trichomanes.* The latter epithet is usually translated as meaning "maidenhair": perhaps it does (I'm no judge), but my dictionary advises me that it could also be rendered as "hair" (of) "the spirits of the dead" or, still more cryptically, as "hair-mane", meaning, I suppose, like the hair in a horse's mane.

This only shows, of course, that it's not always helpful, and may actually be misleading, to literally translate binomials. Having picked up the merest smattering of botanical Latin I prefer to believe so. Why, for example, was what is now *Cyclosorus acuminatus* given the specific name *sophoroides,* which the species retained while flirting with a succession of genera? It means, does it not, *Sophera*-like? I've yet to come across an account of *Sophora* species which doesn't describe the leaves as "fern-like": but, more to the point, I can't see any real resemblance between the fronds of *C. acuminatus* (as illustrated) and typical *Sophora* leaves. I conclude therefore that the species has pea-family type yellow flowers.

Did you realise that *Cryptogramma crispa* is ericaceous? It is if you have faith in the popular gardening magazine which gave this as the correct answer to a question in its "Mastermind of Gardening" competition, which asked aspirants to that title to give the collective term for lime-hating plants.

As some of you will know, I have been compiling a booklet on hardy and semi-hardy ferns from other countries. It would have been unwise to have even aimed for the necessarily chimerical goal of finality. I am, and shall continue to be interested to hear from anyone who has anything pertinent to say on this broad theme, learning of the less familiar species which have succeeded in your garden, and so on. As soon as the booklet can be issued I hope to have your suggestions as to amendations, additions and corrections which could be made. These miscellaneous notes could then form the basis of a regular column in these pages. Meanwhile I offer a few random observations.

One thing I've tried to do in my list is to note recorded "cultivated varieties" for the included species, though I can't guarantee that all remain in cultivation. These are generally either omitted altogether or are barely mentioned in literature which isn't avowedly about fern cultivation, while fern cultivation books seem far less often to be consciously addressed to an international readership than are botanical works; they don't, in other words, appear in English editions unless written in English. So I've tended to learn of further foreign fern cultivated varieties in a decidedly hit and miss fashion, though I have been able to slowly, but steadily, add "new" ones. I had heard of a crested *Davallia mariesii* (I don't now recall where or when): I've now received a piece of rhizome of this, and of a plumose variety, which I hadn't heard of, and which looks decidedly promising. On the other hand I'm watching with slight misgivings small plants raised from spores of an alleged crested *Cyrtomium falcatum:* I felt compelled to try this ("because it was there"), but can't envisage that cresting could enhance this handsome — when well-grown — fern. I fancy that I've raised a variety of *D. hirtipes* agg.; to the best of my knowledge a "first". So far it's not otherwise exactly sensational: pinnae seem (to me) enlarged, and are imbricate and — at present — rather crispate. It seems that the hardy plants we grow as *D. hirtipes* (or as *D. atrata*) are not that, in the strict sense, but are a related species — or it might be that more than one closely related species are grown. I hope that, by the time my list appears, it can be firmly determined what species is/are in general cultivation. My variant is now in its fourth season (from spores): it, and its siblings, are slow developers, but at the time of writing seems to be becoming more, rather than less, distinctive.

In terms of slow development the above have nothing on my two plants of *Dryopteris toyamae (D. sieboldii var. toyamae),* which are of the same vintage and remain tiny. Nonetheless I'm inordinately proud of them, for after their initial sojourn in my primitive and ill-protected fern maternity wing they've remained (recklessly I'm now inclined to think) outside. Not very long with respect to years, but the severe '78/'79 winter was surely quite a rigorous test of hardiness. *D. toyamae* is an interestingly odd Japanese species, which seems to be of hybrid origin.

Other present, and I hope long-term, residents of my garden (which is to say, they've served some time outside without, thus far, signs of ill-effect) to which, for want of queues of paying sightseers at the gate, I daily draw my wife's attention, are *Selaginella braunii,* of Western China, with erect, "fern-like" (you know what I mean) leaves, and an attractive *Adiantum* species (tentatively named as *A. poiretii,* but perhaps *A. aethiopicum* is more likely). Less exciting, the familiar "house-lants" *Adiantum raddianum* 'Pacific Maid', *Pteris cretica* var. *albo-lineata, P.c.* 'Wilsonii', and *Pellea rotundifolia* are growing outside. *Microsorium diversifolium* is another slow developer, as is *Asplenium flaccidum* — but so far so good. *Cyrtomium caryotideum* — very handsome — is growing in exposed and relatively sheltered sites, and shows a marked preference for the latter. Of the ferns generally recognised as hardy, *Coniogramme japonica* is a particular favourite, and like *Blechnum chilense* a surprising omission from postwar British cultivation books. *C. japonica* is included in the "Fern Growers Manual", by B. J. Hoshizaki, but I'm fairly sure that the photo, purportedly of this, is incorrect: it could be *C. fraxinea.*

A great many species are waiting in the wings. Without wishing to sound like a pteridological Samuel Smiles or Baden Powell, it surprises me how limited is the range of species which we usually see in cultivation or which, come to that, are mentioned in these pages, for the choice of species available to us through spore exchanges is so great, and raising ferns from spores is both generally easy and cheap. One curious aspect of the activity, however, is that (or so I find) one is simultaneously living in the past and in the future : the young plants which, hopefully, might be ready for planting out this season may in fact be of some vintage (how much so varying with the genus, and depending to an extent on the rudeness or sophistication of your fern raising facilities), and thus represent choices or enthusiasms of two, three or four years ago – when, perhaps, you were still heedlessly setting out to acquire large woodland species. The future is represented by prothalli, of pin-head to pin-point size: for some reason the most exciting gems seem always to be in this section. If you raise varieties you probably have a few good – or at least interesting – things planted out, have assorted one or two inch high potential winners, which give promise of being Bevis-equivalents, coming along, but these are of no consequence (and hence so is the disappointment of observing their slow deterioration) compared with the incredible profusion of marvels anticipated among the prothalli.

OUR JOURNEY TO GREAT BRITAIN, SUMMER 1980

Helmuth Schmick

We were three: Mr Johann Lintner, of the Niederofleidener Nurseries for ferns and shrubs, an old Hungarian and one of the best fern specialists in West Germany, and a member of our Society; Dr Seidel, now retired, but formerly chief of the Botanical Gardens, Marburg, Germany; and myself, a 55 year old architect.

We wanted to see your ferns one hundred years after the "fernrush" and find out what still exists.

At the end of May, after arrival at Dover by car, we went through the lovely south of England with flowering *Rhododendron arboreum* common in roadside hedges. We visited Wakehurst Place Gardens, Ardingly, a very beautiful garden but where were the ferns? We saw two sorts and of course many endemic ones under trees. We didn't know of Tilgate Wood which is not open to the public, or the Bethlehem Gardens. This is apparently where the ferns grow (see the "Bulletin" 1980).

In the evening we reached beautiful Oxford, a pearl of your old towns. Next morning we saw Mr Schollick's garden. Unfortunately Mr Schollick was not at home but we were shown round by a neighbour. After our visit we wrote thanking the owner. In the garden were many good dryopteris, athyrium and polystichum varieties. Old ivies grow over sandstone figures, the old century can be felt here.

In the oldest part of the 250 year old botanical gardens at Oxford we saw the Dyer fern collection near a big old wall. Many ferns were in good growth and we took, with permission, fronds for our herbarium to help us clear up nomenclature. I thought here and at other places that British pteridologists seem to be most interested in *Athyrium filix femina* varieties. Of course I have never seen more or better varieties on the continent. We also examined the general fern collection in the gardens but the site is becoming too shady and some ferns seem to be suffering.

From Oxford we drove north west through pretty areas with very old and beautiful villages blending well with nature. One village was perfect, some houses built with sandstone, which I think might be a little cold in winter, others had black painted framework and white painted plaster. We reached Evesham and visited Fibrex Nurseries. There in a long shade house we found the ferns with some species and varieties new to us.

After a long drive the next day, we arrived at Waithman's Nurseries in Silverdale. Mr Lintner felt enthusiastic about the dampness and good growth in that climate. *Meconopsis grandis, Ramonda myconi* and some good primulas were in flower and rhododendrons were magnificent. Mr Lintner got a plant of *Adiantum pedatum* "Laciniatum" as a present from Mr Kaye. Unfortunately Mr Kaye had forgotten some names but, of course, that's to be expected at 79 years of age. We hope to visit him again and we wish him good health.

In the afternoon we saw Mr Barnett's boxes of ferns. His shade house in the Yorkshire Dales contains so many good young ferns. We then moved on to the garden of Mr Trippitt at Bradford where we saw yet another set-up for growing ferns. We chatted for a long time with our new "fern-friend", we discussed at length plants in pots and in the garden and the more tender and precious ferns in the greenhouse before being entertained to tea by Mr Trippitt's family.

We had been given the address of the Coughlin's south of Birmingham at Bromsgrove, but we paid the price for not telephoning in advance by finding them out on our arrival.

Disappointed, the next day we moved on to visit Lt Col Philip Coke, our Membership Secretary, at Stinchcombe, Gloucestershire. Their most interesting fern collection begins in the front garden under yellow flowering roses and sweeps up the hill past the house. Among the many treasures in the garden, I will never forget the funnel-shaped *Dryopteris wallichiana*, 130cm in height and it can grow higher of course. I collected one *Polystichum setiferum* "Cristatum pinnulum" to remember the day.

It was a very successful trip to see the ferns in your country. Ferns are becoming more popular here in Germany and our visit has helped us to clear up some problems with nomenclature. Many thanks to you all. The best part of our journey was to be able to come and meet you all. I have written about this for our own Society here in Germany.

GROWING FERNS UNDER ARTIFICIAL LIGHT

Nigel A Hall

Every gardener has his or her own aims and objectives when growing plants but most gardeners share one overall aim — they want their plants to survive. Gardening has often been described in terms more appropriate to warfare, a battle against nature's own intentions. The gardener hopes to defeat nature by defying natural vegetation, destroying awkward pests and often attempting to stimulate artificial change. One technique that offers considerable scope for control is that of 'Light Gardening'.

I have recently been experimenting in a small way with a light garden. It was not built for ferns but for encouraging cacti seedlings through the winter months. However in a house full of ferns it was inevitable that some would find their way under the lights.

I had a collection of sporelings, most of which were about half an inch high and destined to have a pretty rough winter. At that point, having built the light garden I decided to try them out. The results were quite startling. In the coldest part of the year these plants sprouted into growth and within a month were two or three inches high, most with three or four fronds. By March, the time of writing, the development had continued, the plants filling out into presentable ferns.

In the United States it is common practice to start ferns under lights. In fact, light gardening involving most plants is a major popular interest over there. Most American gardening magazines carry several advertisements for commercially built light gardens and usually a couple of articles relating to light gardening. The interest has even given rise to a society, The Indoor Light Gardening Society of America, and they produce a magazine, 'Light Garden', which regularly features articles on ferns.

At the moment there seems no such popular interest in Great Britain but it is probably inevitable that like so many other crazes light gardening will eventually reach our shores. The British light gardener has to build his own light garden. Apart from commercial horticultural applications and research applications there is insufficient market potential to justify mass production of light gardens. Except for one or two very small 'plant control' chambers there do not seem to be any light gardens available for the gardening public.

There are a number of virtues in using a light garden for growing ferns. The obvious one is having a continuous, measured light source for controlling even growth. There are however further implications. A light garden frees the grower from the constraints of modern buildings. You cannot always grow ferns where you would like to grow them. With a light garden you can place them almost anywhere. The constant light source and slight heat generation from the lights means that it is easy to grow some of the more difficult tropical ferns. Plants grown under optimum conditions are usually stronger and therefore less susceptible to disease. The light garden greatly extends the possible range of ferns available to the amateur grower.

Light gardens give clear advantages when it comes to growing spores. Again, as even conditions are maintained, germination and fertilisation are usually quicker and of course spores can be sown any time of the year with equal chance of success. Most fern spores do need good light, a point noted by E. J. Lowe nearly one hundred years ago when he tested germination and fertilisation under different light conditions.

During Winter most plant growth slows or even stops and this is more likely to be a reaction to day-length than to temperature. The light garden with its easy control of conditions allows the grower to balance conditions to the needs of the ferns. The results, to judge from my own limited experience and that reported by American fern growers, are extremely rewarding.

There are a number of points that should be borne in mind by anyone contemplating growing ferns under lights. Not all ferns grow happily under even conditions. Some ferns require a resting period in cooler temperatures. These are probably best wintered in a frame or cool house. Secondly light intensities can be too high for some ferns. This can be remedied by moving the plants further from the lights or shading the plants with white tissue paper. If you move plants away from the lights remember that light intensity at different distances from lights varies in a logarithmic scale, so move them too far and etiolation will occur. The final point is to remember not to change growing conditions too drastically, too quickly. If, as I have been doing, you grow the sporelings in polythene containers where humidity is high be careful when you change the conditions. The sudden loss of good light and high humidity can be devastating. Gradual acclimatisation must always be the rule.

A light garden is not difficult to build. The ideal size for the home is a four foot unit. You can buy double lamp units and these enable a better light balance to be achieved. If you use two tubes, use a mixture of cool white and warm white. The two in combination give a better coverage of the spectrum. Do not use ordinary household incandescent lamps. They give little light and a lot of heat. A day length of about twelve to fifteen hours is ideal and a twenty four hour timer is a help. It certainly prevents the agony of arriving at work and remembering that the lights are still switched off.

I cannot claim vast experience with growing ferns under lights but I am sufficiently encouraged to extend my trials and attempt a wider selection of ferns. On the basis of what I have read I expect it to be a success but of course the proof awaits many months of growing. Perhaps some of our American members with more experience of this technique could let us know how they do it. Next year's "Bulletin" will hopefully contain an updated report on my successes or failures. It would be nice if it could also contain the results of other people's experiences.

GROWING FILMY FERNS INDOORS

Alison Rutherford

Many members may have tried growing ferns in bottle or jar gardens and some may have made a Wardian case from an aquarium, but who has used the genuine article?

A friend told me she'd seen a case in an Edinburgh antique shop, but she was told that it was an aquarium. On my first day off I went over to look at it and there before my gaze was an oblong aquarium-like thing. It had a pitched roof, the panes finished with a small flat metal ventilator, pierced with a pattern. At the top was a handle of four curved tubes and a 'flower' beneath, and to crown all this, a ring with three fleurs de lys – I think this part is the base of a gasolier upside down; anyway it makes a satisfactory and strong handle to lift off the roof section.

The upper portion was kept from sliding off the lower by a crudely-cut zig-zag band of metal and the corners were finished with wavy pieces like frilled hartstongue ferns. It was painted matt black except for some inappropriate cast-iron lions' feet, and the handles which were gold. Despite the lid, and bearing in mind that some of the early aquaria seem to have had covers, I thought it might be a combination case. At some stage (if it had been a water and not a damp air holder) it seems to have been converted by having a channel made with a spout to drain excess water from the base. If it was once for water – it must be the rarest antique in Britain!

It was swathed in corrugated paper and string, and a taxi was summoned, with some difficulty I got it home, the modern plate glass weighed a ton! The painter, who had made it resemble a glass hearse from a Western, had done too good a job for me to be sure of original colours; but now I have coloured it two shades of yellow-green, white on the tubular ribs and gold on the handle and the genuine (and correct) bun feet.

Now for the truth – Warrington Cases don't work! No matter where I set it, free from draughts, in steady temperatures, it fugged up almost all over. I put in a modern Perspex tank to try it with water, I tried a shallow pool with ferns on rocky islands, they liked it, but seeing in was nearly impossible. In the end I thought it would be best as a plain case housing *Hymenophyllum demissum* and *Trichomanes speciosum,* sited in an ill-lit spot but where temperature changes would be slight and slow.

I don't think these ferns are fussy about composts, the light and humidity are more important to them, but the Killarney Fern loves tufa, I was given a walnut-sized piece of this rock just over a year ago, it was put under a furry advancing foot; the result was extraordinary, an explosion of fresh rhizomes in every direction which seemed to grow much faster than usual.

I use a mixture of equal parts of loam, peat, sand and leaf-mould and add little chunks of sandstone and charcoal and plant the roots to run over this and soft crumbly sandstone which came from a basic area, though it would appear from fern books that any porous rock pleases these ferns.

Some of the Killarney Fern came from Reg Kaye and some from Glasgow Botanic Gardens, the former is originally from the Chelsea Physic Garden and the latter could be from Arran, but there are no records, they are however distinct:-

Glasgow fern
Fronds broader, the smallest divisions almost flabelate. The secondary midribs only just not at right angles to the main stem, in very good conditions the plant looks almost foliose. The flabelate character very clear as frond begins to die (they do this from tip inwards).

Chelsea Physic Garden fern
Fronds narrower in outline, secondary midrib very upswept, not capable even at maturity of looking dilated. Finest nerves less divided at tips. All small parts of fronds are narrow and upswept, this is very apparent in new growth.

They are at the top of the stairs, which are lit halfway up by a northfacing skylight, they get a little heat from a background radiator in the hall below. Occasionally a frond will get a white mildew and not fully unroll, this is, I think, aggravated by long cold spells, such as my being out of the house for three weeks running during December and January. Mildew mostly occurs at the back of the case, away from the light.

Heat speeds growth and frond-size. I experimented briefly with a wide-mouthed jar in the kitchen where most of the year there is a solid fuel stove. Too soon the fronds met the sides and so the rhizome was planted back in the case. I do not syringe except at first planting, instead I water the rocks and rarely at that.

REQUESTS

Plants or spores of: *Adiantum capillus-junonis, A. edgeworthii, Crypsinus veitchii, Gymnopteris vestita, Monachosorum subdigitatum, Pellea andromedifolia, P. brachyptera, P. breweri, P. bridgesii, P. nitidula, Polystichum longipaleatum (P. setosum), P. squarrosum, Pyrrosia linearifolia, P. petiolosa, Selaginella tamariscina.*
A diverse range of plants or spores could be offered in exchange.
Richard Rush, 17 Toronto Road, Ilford, Essex.

Roger Grounds of 1 Southwood Cottages, Moundsmere, Basingstoke, Hants RG25 2HF is desperate to obtain the following: *Cyrtomium falcatum* 'Dwarf', *Platycerium veitchii, Pyrrosia lingua* wild type and the forms 'Kinshi', 'Kugsha', (which may be 'Kugsha Peacock'), 'Kutata', 'Monstrifera', 'Nokogiri', 'Oba', 'Undulata' and 'Variegata'.
Can anyone help ?

A French horticultural photographer-reporter is anxious to contact British fern growers who possess an extensive collection in top condition with a view to photographing them for publication in the French horticultural press. Interested members should write to Philippe Perdereau, 21 rue Paul-Eluard 78500 Sartrouville, FRANCE.

Dr Kevan Chambers of 54 Princes Road, Brunton Park, Gosforth, Newcastle upon Tyne, would like to obtain plants or spores of the following ferns: *Hymenophyllum tunbrigense, Anogramma leptophylla, Asplenium billotii, A. obovatum, A. x alternifolium, Athyrium flexile, Ophioglossum vulgatum, O. lusitanicum, Botrychium lunaria.*
Dr Chambers is able to offer other British native species in exchange, but if preferred he would be prepared to buy any of these items.

(Please send any replies to these requests direct to the members concerned).

OBITUARY

It is with very great regret that we have to announce the death on the 4th of February this year of **Marion Kaye**, the wife of our Past President, Reginald Kaye. She had been in failing health for some years, and those of us who knew her as an active member and enjoyed her companionship in the field, were saddened to see her gradually becoming frailer. One of her pastimes was painting and I recollect how at times we would leave her settled in front of her easel while we pursued more active recreation in seach of ferns. At flower shows, too, I remember how she and Reg worked as a team and created the most superb floral displays. Her passing is a great loss, and to Reg and their family we extend our deepest sympathy.

J W Dyce

MEMBERSHIP LIST – Additions and Amendments

FULL MEMBERS AND SUBSCRIBERS – NEW

ATACK P B, 3 Northfield Place, Dewsbury, W. Yorks
BALDERI Felice, Via L Puccetti No 43, S Concordio, 55100 Lucca, Italy
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BECKER Greg, P O Box 3723, Eureka, California 95501, USA
BENHAM Dale, Biology Dept, Angelo State University, San Angelo, TX 76909, USA
BOTANICAL RESEARCH INSTITUTE, The Director, P Bag X101, Pretoria TVL, 0001, South Africa
BOTANISCH MUSEUM EN HERBARIUM, The Library, Heidelberglaan 2, Box 80 102, 3508 TC Utrecht, Holland. Attention – Dr E A Mennega
BOUDRIE Michel, 30 Rue Salardine, 87230 Châlus, France
BOULTON Stephen J, 53 Oaklands Avenue, Brookmans Park, Herts
BRAITHWAITE Miss K A, Kelgarth, School Lane, Keyingham, Hull, Yorks HU12 9RJ
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CROWTHER John, Flora House, 81 Kew Green, Richmond, Surrey
DAVIES Mrs A, 10 Mundon Place, West Pennant Hills, New South Wales 2120, Australia
DICKINSON John and Mrs June, 74 Broadway, West Rosebud, Victoria 3940, Australia
DILLON M S, P O Box 1018, Mount Dora, FL 32757, USA.
DUGDALE Leslie, Main Street, Grange-over-Sands, Cumbria
EDWARDS Dr D S, Botany Department, University of Cape Coast, Ghana
GILDEA Donald, 15 Shelley Road, Bognor Regis, Sussex PO21 2SL
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GOULDING Mr and Mrs R V, 239A Carr Road, Northolt, Middlesex
HARTLAND Richard, 14 Darling Street, Moonee Ponds, Australia 3039
HAWES Dennis W, 54 Southgate, Redruth, Cornwall TR15 2NB.
HICKMAN G A, Tresco, 25 Stoneleigh Road, Gibbet Hill, Coventry CV4 7AB
HUGHES Ralph H, 1546 Del Rio Drive, Fort Myers, Florida 33901, USA
ISTITUTO ED ORTO BOTANICO, Universita Degli Studi di Trieste, Via A Valerio 30, 1-34100 Trieste, Italy.
JARDINS BOTANIQUES DE NANCY, 100 Rue du Jardin Botanique, 54600 Villers-le-Nancy, France. Attention – Mons P Valck
JONDALL Gaylord B, 4946 Rockford Drive, San Diego, California 92115, USA
JONES David L, P O Box 261, Palm Beach, Queensland 4221, Australia
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PROPER G J, 2253 TJ Voorschoten, Kortenaerlaan 40, Holland.
PUSAT PERPUSTAKAAN, The Library, Biologi Dan Pertaman, Jalan Ir H Juanda 20, Bogor Indonesia.
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MEETINGS PROGRAMME 1982

Meetings Secretary: A J Worland, 102 Queens Close, Harston, Cambs CB2 5QN.

Meetings Committee: A R Busby, J A Crabbe, J W Dyce, M H Rickard, J R Woodhams.

Saturday 20 February	Indoor Meeting at the British Museum (Natural History), Cromwell Road, London, SW7 5BD, at 2.00 p.m.
Saturday 20 February	Annual General Meeting to be held at the British Museum (Natural History), Cromwell Road, London, SW7 5BD, at 2.15 p.m.
Saturday 22 May	Visit to the Fern Houses and outside fern borders at Kew Botanic Gardens. Meet outside Fern Houses at 2.30 p.m.
Friday/Sunday 11/13 June	Weekend Meeting in Derbyshire **Leader:** Alan Willmot. **Centre:** Clovelly Hotel, 216 Kedleston Road, Derby.
Saturday 26 June	Visits to Sissinghurst and Scotney Castles, Kent. Meet at Sissinghurst Castle car park at 11.00 a.m. **Leader:** Paul Ripley
Saturday/Sunday 10/18 July	Week Meeting at Newcastle Emlyn, Dyfed, Wales. **Leader:** Jimmy Dyce **Centre:** Emlyn Arms Hotel, Newcastle Emlyn, Dyfed.
Wednesday/Wednesday 28 July/4 August	The Ferns of Devon Residential Field Course at Slapton Ley, Kingsbridge, Devon. **Tutor:** C N Page, PhD
Friday/Sunday 6/8 August	Weekend Meeting at Ludwell, near Shaftesbury, Dorset. **Leader:** Jimmy Dyce **Centre:** Grove House Hotel, Ludwell.
Thursday/Saturday 19/21 August	Southport Flower Show. Many fern classes. Visit the Society's Stand in the Societies' Tent.
Thursday/Monday 26/30 August	Long Weekend Meeting in the Ludlow, Shropshire area. **Leader:** Martin Rickard **Centre:** Bowling Green House, Whitcliffe, Ludlow.
Saturday 18 September	Visit to Jackamoor's Hardy Plant Farm, Enfield, Middlesex. Meet at Entrance at 2.00 p.m.
Saturday 6 November	Indoor Meeting at Kew Botanic Gardens, in the Wood Museum. Meet at 2.00 p.m.

REGIONAL DAY MEETINGS

Suitable dates will be arranged by direct personal contact with Organisers.

South-west England: Christopher and Mary Potts, 4 Kennel Lane, Webbington,
Near Axbridge, Somerset. Tel: 093 472 545.

West Midlands: A R Busby, 42 Lewisham Road, Smethwick, Warley,
West Midlands. Tel: 021 558 4481.

North-west England: Nigel Hall, 3 Sydney Road, Bramhall, Stockport, Cheshire.
Tel: 061 440 8986.

South-east Scotland: Michael M Scott, 24 Gardner's Crescent, Edinburgh EH3 8DE.
Tel: 031 229 8435.

Members who would like to receive their Regional Meetings programme should apply to the Organiser, **enclosing a stamped addressed envelope.**

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THE NIPPON FERNIST CLUB

There exists in Japan this large and active Society devoted to the study of ferns which welcomes contact with foreign pteridologists, both amateur and professional.

For further information write to:
Dept of Forest Botany,
Faculty of Agriculture, Tokyo University, Hongo,
Bunkyo-ku, Tokyo, Japan 113.

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Dept 11, Town Hall, Lord Street, Southport, Merseyside PR8 1DA

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THE
BRITISH PTERIDOLOGICAL
SOCIETY

BULLETIN

edited by

M H RICKARD

VOLUME TWO NUMBER FOUR

1982

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THE BRITISH PTERIDOLOGICAL SOCIETY

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The *Fern Gazette* and the *Bulletin* are the journals of the British Pteridological Society, published annually. The Gazette publishes matter chiefly of specialist interest on international pteridology, the Bulletin topics of more general appeal.

The BRITISH PTERIDOLOGICAL SOCIETY was founded in 1891 and today continues as a focus for fern enthusiasts. It provides a wide range of information about ferns through the medium of its publications and available literature. It also organises formal talks, informal discussions, field meetings, garden visits, searches for rare fern books, plant exchanges and a spore-exchange scheme. The Society has a wide membership which includes gardeners, nurserymen and botanists, both amateur and professional, in Britain and overseas. Articles for the Society's publications are received from, and reflect the interests of, Society members.

Membership is open to all interested in ferns and fern-allies, worldwide. Subscription rates (due on 1st January each year) are: Full Personal Members £7; Personal members not receiving the Fern Gazette £5; Student Members (full-time students under the age of 25) £5; Subscribing Institutions £8. Applications for membership should be sent to the Membership Secretary (address above), from whom further details can be obtained. (Remittances made in currencies other than Sterling are £0.50 extra, to cover bank conversion charges.)

The British Pteridological Society is affiliated to the Royal Horticultural Society

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Back numbers of the *Gazette* and *Bulletin* are available for purchase from the President (address above), from whom further details can be obtained.

THE
BULLETIN
OF THE
BRITISH PTERIDOLOGICAL SOCIETY

Vol 2 1982 No 4

WHAT'S AHEAD FOR 1983

Clive Jermy

I have been asked to write the first of a series of notes which will aim to draw members' attention to developments in the Society and perhaps wider in the fern world generally. It is by no means a President's perogative and I hope others will contribute to it in the future.

Two matters are very much in Committee members' thoughts at the moment. First, we are aware that we have a growing membership of those keen on growing ferns and that our activities and journals barely satisfy these interests. The Bulletin, started as a Newsletter by our former Secretary, Jimmy Dyce, was aimed at this market and our present editor, Martin Rickard, is doing an excellent job in developing the Bulletin with the horticultural members in view, but remember, whilst he contributes significantly as an author also, he can only edit what copy is sent in to him. If you cannot write something yourself but would like to see a specific article, let Martin know and he may know someone who could write it.

There is a more positive approach to this need for more published material on fern growing in a temperate climate like ours. Richard Rush, who must have one of the largest collections of hardy fern species in cultivation in Britain, has compiled a list of over 500 species he considers hardy in the British Isles. We hope to publish this early in 1983 to encourage people, when they see spore lists and catalogues, to branch out from the standard British cultivars. Further regular publications describing (with photographs) fern species and varieties and their cultivation are being proposed, and the implication of this exciting venture will be discussed shortly by the Committee. We realise we cannot just sit back hoping this kind of material will come in, we must make a conscious and positive effort to obtain it.

The second matter concerns our programme of activities. I hope that the next three years will see more field activity with meetings designed both to teach inexperienced members and stimulate those who know their ferns. We believe that week-long meetings are in the present economic climate too expensive and hope the weekend meets (sometimes of 3½ days) will be fully supported. Our AGM in 1983 will be in Birmingham and we shall, I hope, have those meetings in alternate years in the provinces.

Fern distribution recording will remain one of our main activities and this can be carried out by individuals as well as organised parties. There are still many blank 10 km squares in the *Atlas of Ferns* let alone the many open circles (supposedly recorded only before 1950) which should be solid dots. Matt Busby, our Recorder and liaison with the Biological Records Centre (ITE) at Monks Wood will send data recording cards to anyone wishing to collect information. Ultimately I hope the computer will print desiderata, i.e. lists of records expected but so far not reported for each square.

The distribution of wall ferns in lowland south and east Britain is correlated very closely to church walls and tombstones. The Botanical Society of the British Isles (BSBI) has launched a network research project to identify the most botanically valuable 10% of churchyards or other burial grounds in each county. I hope BPS members will join in this and comment especially on the pteridophyta aspects. *Asplenium adiantum-nigrum, A. ceterach, A. phyllitis, A. ruta-muraria* and *A. trichomanes* Subsp. *quadrivalens, Cystopteris fragilis* and all the species of *Polypodium,* and possibly their hybrids, may be found. If *Gymnocarpium robertianum* can grow on a siding platform at Kew LTE Station, it may be on several tombstones outside its range but so far unrecorded. Anyone interested should write, stating vice-counties to be worked, to Mrs Mary Briggs, Hon. Sec., BSBI, White Cottage, Slinfold, Horsham, Sussex RH13 7RG, for recording forms and further instructions.

SECRETARIAL NOTES

A R Busby

MEETINGS CARDS – Meetings cards for 1983 are enclosed with this Bulletin to all inland members. Overseas members, visiting Britain, can obtain them on application to the Meetings Secretary.

PUBLICATIONS BY AIRMAIL – Our journals can be sent by airmail to overseas members, provided they advise the Membership Secretary and pay an additional subscription to cover airmail postage. The additional amount required is £2.50 for full members and £1.50 for those receiving only the Bulletin. The amounts should be sent with annual dues.

****

SUBSCRIPTIONS 1983 – Members are reminded that subscriptions for 1983 are due on the 1st January 1983 and should be paid to the Membership Secretary, Lt Col P G Coke, Robin Hill, Stinchcombe, Dursley, Gloucestershire, GL11 6BG. Cheques should be made payable to 'The British Pteridological Society'. Bankers Order Forms are available from the above address.

****

COMMITTEE VACANCY – In accordance with paragraph 3, section 3 of the Society's Constitution, one vacancy will occur due to the retirement of the longest serving Committee member. Nominations are invited from members of the Society to fill this vacancy at the Annual General Meeting in February 1983. The name of the nominees, proposer and seconder, together with a letter from the nominees indicating their willingness to serve, should reach the General Secretary by the 31st of January 1983.

AFFILIATION TO THE ROYAL HORTICULTURAL SOCIETY – Our Society is affiliated to the RHS, enabling a limited number of members to enjoy certain privileges in connection with RHS Shows, competitions and services. A small number of tickets are available for the Chelsea Show and the Great Autumn Show. These tickets will be allocated to members on a first-come-first-served basis. There are also two transferable tickets available for all other RHS shows. Application for tickets or further details, together with a stamped, self-addressed envelope, should be made to the BPS General Secretary.

READING CIRCLE – The American Fern Journal, a quarterly containing much information for those seriously interested in ferns, is circulated to Reading Circle members. To join, apply to Mrs Mary Potts, 4 Kennel Lane, Webbington, Nr Axbridge, Somerset.

BRITISH FERN GAZETTE BINDERS — Binders for volumes 10 and 11 of the British Fern Gazette are available from the General Secretary. Attractively produced with light green hard board covers and gold blocked lettering on the spine: only £2.50 each, including postage and packing. This applies to inland members only. Cash with order, please make cheques payable to 'A R Busby'. Price of binders to overseas members available on application to the General Secretary.

THE GREENFIELD FUND — This fund, set up as a memorial to one of our Society's great fern growers — Percy Greenfield, is used to finance approved research projects, helping with the costs of necessary equipment, books and travel expenses. Awards for meritorious achievements such as the introduction of a new fern variety or plant, or some of the Society publicity projects would be considered as worthy of help from the fund. Percy Greenfield's interest leaned very much towards the non-scientific side of our activities and it was felt that he would want this to be taken into consideration when decisions are made. Workers eligible for university grants and similar support will not, therefore, be eligible for help from the fund. Members with projects wishing to benefit from this memorial trust should apply to the trustees via the General Secretary.

PTERIDOPHYTE RECORDS 1982

A R Busby

Since the appearance of the 'Atlas of Ferns' in 1978 (a joint publication by the BPS and the BSBI), I have compiled and published each year, new Pteridophyte records and mapping errors which have been brought to my attention. However, I have felt for some time that these annual compilations should be published in the 'Fern Gazette'.

With the approval of the Committee, therefore, the 1982 additions and corrections to the 'Atlas of Ferns', will be published in the 'Fern Gazette' during 1983.

Individual Record Cards (Terrestial) and instructions for their use, together with the publication 'Instructions for Recorders' compiled by John Heath and Diane Scott are available from: The Biological Record Centre, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs. PE17 2LS.

THE AMERICAN FERN SOCIETY INC.

wishes to extend an invitation to readers of this Bulletin to join the American Fern Society. Regular members receive the "Fiddlehead Forum" six times a year. This newsletter is published for the benefit of those who are interested in growing ferns, hunting for them, and expanding their general knowledge of ferns. Journal members receive, in addition to "Fiddlehead Forum", the scientific quarterly "American Fern Journal". Membership costs $5.00 and $8.00 per annum, respectively. For particulars please write to Dr J E Skog, Dept. of Biology, Geo. Mason University, Fairfax, VA 22030, USA. Prospective members residing in Great Britain should write to Nigel Hall, 3 Sydney Road, Bramhall, Stockport Cheshire SK7 1NH, by 31st January 1983. British members should note that the American Fern Society has to add a postage surcharge for overseas members. Membership will cost $7 and $12 respectively (£4.20 and £7.15 approximately at current exchange rates).

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ORDINARY ACCOUNT

Income			
1980			
£2802.55	Subscriptions		£3861.11
	Donations		10.50
	Sales –		
194.00	Gazettes, Bulletins	201.50	
50.00	Booksales (Profits)	150.00	351.50
99.99	Interest on Deposit Accounts		4.17
			£4047.28
Expenditure			
547.00	Metloc A/C Bulletin Vol 2 No 3		729.00
2027.24	Metloc A/C Gazette Vol 12 Pt 3		1120.00
249.37	Printing and Stationery		281.67
681.82	Administrative Costs and Postage		713.79
40.15	Subscriptions to Societies		21.10
	Meetings' Costs		28.50
			£2894.06
585.84 Dr	Excess of Income over Expenditure		1152.72
1451.82	Balance Carried forward from 1980		865.98
	Balance Carried Forward		£2019.70

PUBLICATIONS ACCOUNT

	Balance Carried Forward from 1980		508.24
Income	Sales –		
	Hardy Ferns	518.00	
	Leaflets	17.15	535.15
			1043.39
Expenditure			
	Binding of Hardy Ferns	857.53	
	Printing Leaflets	22.00	879.53
			£163.86

GREENFIELD FUND

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Interest	120.38
Balance Carried Forward	£1457.97

THE FERNS OF PERTHSHIRE, 3–10 AUGUST 1983

Field Studies Association residential course at Kindrogan Field Centre, Enochdhu, Blairgowrie, Perthshire. For details apply to the Warden of the Centre.

Tutor: Dr C N Page

MEETINGS 1982

INDOOR MEETINGS

The Spring Indoor Meeting was held on 20 February in conjunction with the AGM at the British Museum (Natural History) in the Conversazione Room. 42 members were present to enjoy a meeting that was spent as a celebration of Jimmy Dyce's 47 years in the Society.

Prior to the start of the meeting, members were able to browse through a fine selection of new and second-hand fern books offered for sale through the Society's BPS Booksales.

Richard Rush provided a display of fronds of named *Polystichum setiferum* varieties which members found most interesting.

Some time was spent in conversation while enjoying light refreshments, supplied and served by Kathy Kavanagh and Alison Paul, to whom we give our appreciative thanks.

Afterwards the meeting settled down to listen to Jimmy Dyce's retiring Presidential Address, 'Ferns, The Fern Society and — Jimmy Dyce'. A talk which proved to be a fascinating history of the Society's past 47 years and is reported in full elsewhere in this Bulletin.

THE 79th ANNUAL GENERAL MEETING — 20 FEBRUARY 1982

The 79th Annual General Meeting was held at the British Museum (Natural History) on Saturday 20 February 1982 at 2.30 pm with 42 members in attendance. The President, J W Dyce, was in the Chair.

Honorary General Secretary's Report: Members will be aware from the report of meetings in the 1981 Bulletin, that the Society has had another good year with meetings well attended.

This time last year, we were still trying to assess the effects of the subscription increase. Philip Coke, the Membership Secretary, has provided me with a breakdown of the membership figures for the year ending 31 December 1981. Resignations during 1981 were: Full Members 60 and No Gazette Members 9, making a total of 69. Totals for new members were as follows: Full Members 77 and No Gazette Members 21, making a total of 98. This gives us a net increase of 29. The total membership number at the end of December 1981 was 592.

This Society has always been aware of its responsibilities for conservation and the Committee is pleased to report that we have contributed to a success in this field. Prompted by Dr Mary Gibby and A C Jermy, we expressed concern at the proposed use of water from Ennerdale and Wast Water in Cumbria by British Nuclear Fuels Ltd. This would have resulted in major changes in the habitat and there were many voices raised against it. I am pleased to report that this has now been rejected by the Dept. of the Environment.

R F Cartwright, the Spore Exchange Officer, reports another busy year having dispatched over 1000 packets of fern spore to different parts of the world. To be able to continue this service, he must be able to rely on a regular supply of fern spore. The highest demand is for spores of British fern varieties especially the Harts-tongue varieties. He requests that United Kingdom members send him spores of their named varieties.

I am sure that members will join me in thanking Dick Cartwright for doing a splendid job.

Treasurer's Report: The 1981 finances of this Society saw us once again receiving an income exceeding our expenditure. The increase in the amount of subscription money received was one main contributing factor. The other was the dramatic decrease in Gazette costs achieved by having it printed by Metloc, who have produced our Bulletin for a number of years. These two changes alone should ensure that the Society's finances are sound for the next few years. Booksales, organised by J W Dyce, yielded more profit than in previous years and there have been steady sales of back numbers of our journals.

The Publications Account has been used to finance the binding of Hardy Ferns. Sales have yet to realise enough money to recover this capital expenditure, however, we have 300 copies in stock awaiting further sales, so we should eventually recover our outlay.

The Greenfield Fund is steadily accumulating interest with little call on it for grants.

Both reports were approved and Mr Busby and Dr Thomas were thanked by the meeting.

Dr C N Page, Editor of *The Fern Gazette,* sent in a report outlining the problems that arose last year causing the *'Gazette'* **to publish** very late in the year. He is still experiencing problems, due largely to ill-health which may affect the publication date for the 1982 edition of *The Fern Gazette.* **M H Rickard, Editor of** *The Bulletin* sent in a brief report urging members to write to him if they felt that the *Bulletin* is lacking in any way. He is particularly anxious to receive short notes and longer articles on fern growing.

At this meeting, The President, J W Dyce, retired after three years service in the Presidential Chair. The new President proposed by J W Dyce and seconded by J Cramp is A C Jermy BSc, a Society member for many years who has served the Society previously both as Committee Member and Editor of *The Fern Gazette.*

The retiring members of the Committee were J W Grimes and S L Williams, and the new President thanked them for their services while in office. They were replaced by Miss M Barker and R Rush. All other officers and Committee remain unchanged.

Mr Jermy, in thanking the retiring officers, made special mention of Jimmy Dyce's outstanding contribution to the development of our Society. It is due solely to Jimmy's efforts that the Society now enjoys a second journal, namely *The Bulletin* and a first class Spore Exchange Scheme now expertly handled by Dick Cartwright, which is a great service to fern growers both here and throughout the world. Jimmy's influence has been felt by fern growers throughout the world. He has fostered and encouraged botanists old and young alike, and the Society is lucky in having such a good cross-section of membership both professional and amateur.

Jimmy was awarded the Society's Stansfield Medal and made an Honorary Member in 1975 in recognition of his work within the Society, and especially for the fern grower.

Mr Jermy went on to say that Jimmy deserves the right to stand down from active participation within the Society but, knowing Jimmy, his interests and his activities will continue to the full and he welcomed this. As an Elder Statesman, Jimmy's counsel would always be listened to and Mr Jermy was pleased that Jimmy had accepted the nomination of Vice-President and that it had been carried by the meeting unanimously.

The meeting closed at 3.30 pm to be followed by the Spring Indoor Meeting.

A R Busby

The Autumn Indoor Meeting was held on the 6 November in the Wood Museum, Royal Botanic Gardens, Kew, and was attended by 38 members and guests. After welcoming everyone, the President introduced Dr Alan Wilmott from Derby who gave a talk entitled 'Ferns of Ireland', illustrated with colour-slides and pressed fronds. Two areas of the Republic were featured, the Burren/Galway Bay, and the Killarney area. Dr Wilmott drew comparisons between the distribution of species in Great Britain and their largely unexplained rarity or absence in Ireland, as illustrated by the 'Atlas of Ferns' 1978. The Society has often considered including a visit to Ireland in previous meetings' programmes and Dr Wilmott's superb views of Ireland certainly whetted the appetite for such a visit. After tea the President introduced Dr Barry Thomas, the Society's Treasurer and a Palaeobotanist, who had kindly agreed to give a short talk on 'Fossil Ferns'. Dr Thomas outlined how fossils are formed and the many problems faced by palaeobotanists when trying to make taxonomic sense of what, in reality, is geological debris. He was able to show that the clues are there and explained the many laboratory techniques that are used to unlock the secrets of these ancient plants. It was fascinating to stare at the detail of fronds, stems, veins and spores of ferns that lived and died 270 million years ago.

The President thanked both speakers for giving very interesting talks which proved far too short. He also thanked Mary Gibby and Kathy Kavanagh for providing the teas and John Woodhams for organising the venue.

A R Busby

DAY MEETINGS

Kew Gardens – 22 May. Once again this meeting was very popular, with a large number of members and friends present. The afternoon, as always, was far too short with so much to see and so little time. John Woodhams and Professor Holttum showed the party around the fern houses including some not open to the public. The tour was frequently interrupted while our hosts provided interesting tit-bits of information on some of the more noteworthy ferns. Prior to the meeting starting at 2.30 p.m., a few of us toured the hardy fern collection accommodated in the Woodland Garden. While this is only a pale shadow of what it must have been at the turn of the century, it is still worth visiting with its many splendid examples of some of our British varieties. Of particular note for me were two enormous clumps of *Dryopteris filix-mas* 'Bollandiae' – the plumose form of the species.

As in previous years after the tour of the fern houses Professor and Mrs Holttum invited everyone back to their home for tea – once again very many thanks.

M H Rickard

Scotney and Sissinghurst Castles – 26 June. An encouragingly large number of 24 members and guests enjoyed visiting these two widely contrasting gardens. The weather was full of contrasts too, but fortunately the heaviest of the showers fell at lunchtime.

Although both gardens are on similar soil – Tunbridge Wells sandstone with acid clay pockets and both were constructed around romantically ruined castles, their styles are quite different.

Sissinghurst, created by Vita Sackville-West and Harold Nicolson in the 1930's, is a horticulturist's garden containing a very large number of species arranged in discrete formal designs each with a unifying theme, e.g. colour. The head gardener, Pamela Schwerdt, had gone to considerable trouble laying out and labelling ferns for us. Twenty five species or varieties were counted, of particular merit were *Athyrium filix-femina*

'Vernoniae', a finely crested *Blechnum penna-marina* (specimens of which were for sale) and a very fine *Asplenium scolopendrium* 'Crispum'. Mention should also be made of the imaginative use of *Gymnocarpium dryopteris* at the base of an ornamental hedge of *Ornithogalum nutans.* In mid-summer the fern is trimmed to maintain a fresh green.

In contrast the garden at Scotney Castle was designed to enhance the innate beauty of its situation. Apart from *Onoclea sensibilis,* Oak and Beech fern, *Blechnum magellanicum* (or was it *B.chilense*!) and royal fern, most ferns seen were not planted. In all, 11 wild species were noted, together with one plant of *Polystichum setiferum* 'Divisilobum' – which was presumably planted.

A further contrast was provided by the extremely poor variety and condition of the small number of ferns at present at my house, kindly visited by a number of members after the meeting.

Paul Ripley

Jackamoor's Hardy Plant Farm, Enfield, Middlesex – 18 September. Again we had a very warm and sunny day for this visit, but it was not so well attended this year – about 12 members turned up. This was a pity, for a lot of hard work has been put in during the past year by the new owners and the nursery is beginning to look as it must have done in the past before it was allowed to run down. It is now well stocked with a large variety of plants, and a lot of time has been devoted to the building up of a comprehensive fern stock.

We had a warm welcome from the proprietor, Mr F M Gloyne, who assured us that it would be even better next year. As well as further development of the nursery and its plant stocks, there would be more facilities for the visitor, including the opportunity to get a cup of tea.

J W Dyce

REGIONAL DAY MEETINGS

SOUTH-WEST ENGLAND. Rocky Valley, Cornwall – 15 April. The first meeting of the year took place on a brilliantly sunny day and consisted of a small party of six people. (Apologies for the short notice given for this meeting – I know more people would have liked to attend.) The day started with a short foray to the side of the Rocky Valley, overlooking the sea, and revealed a stand of *Adiantum capillus-veneris* growing in a sheltered crevice. We had last seen this site about 8 years ago, and the fern still appeared to be covering an area of about 2 square yards and in an identical position. Though very early in the season the new fronds were just discernible beneath the browning foliage of last year's growth. After a short – and somewhat hazardous – journey, we arrived at Trebarwith Strand and looked at *Asplenium marinum* growing at the base of the cliffs. No new fronds were visible but the plants had remained evergreen in this favoured position; there were some dozens of large and flourishing clumps of this attractive fern. We gave a brief glance at a few dormant plants of *Osmunda regalis* growing in an old quarry at the head of the valley. We returned to the Rocky Valley in the afternoon and travelled up through the centre of the glen. We counted thirteen species of fern in the wooded valley, particularly noticeable were some fine plants of *Dryopteris affinis* with fronds four feet long, the newly rising croziers covered with golden scales. The fronds of *D.dilatata* were partially unfurled but no other ferns were showing signs of new growth. Unfortunately, the whole valley was littered with barbed wire and fallen (or felled) trees; though our fern explorations were rewarded, we were dismayed to notice old metal and rubbish dumped indiscriminately in various parts of the glen. This secluded valley has become spoilt by the debris of civilisation.

Knightshayes Court — 25 July. Kenneth Adlam conducted nine members around this superb woodland garden owned by the National Trust. After looking at some of the smaller enclosed gardens we proceeded to the woodland garden and admired large plantings of *Blechnum penna-marina* edging the paths, and completely covering low embankments of peat blocks; this appeared to be the larger form of this fern and led to some discussion on variation in size. Some very fine specimens of *Polystichum setiferum* 'Plumoso-divisilobum' were growing in the wood along with two flourishing plants of *Cyrtomium falcatum* and *C.fortunei.* There were many other ferns as well as the fine trees, shrubs and plants for which this garden is justly famous. After purchasing some plants at the stall (which specialises in some of the rarer plants grown at Knighthayes, including ferns), we also received gifts of some interesting and unusual plants from Mary Mottram — and so finished a fascinating and rewarding visit.

Philip and Mary Coke's Open Day — 22 August. A blustery and rainy day, with a cold wind, did little to mar an excellent meeting at Philip Coke's house and garden. Twenty members and friends attended the open day and enjoyed looking at Philip's splendid fern collection. A large number of ferns — both hardy and tender — were exchanged and Jimmy Dyce brought a selection of fern books, including recent publications, for sale. Philip's garden was in the immaculate condition which we have come to expect of him, and he was able, yet again, to show us some new and exciting plants of his own raising. The collection of *Asplenium scolopendrium* was particularly interesting and contained some superb variegated and finely crested dwarf forms. Some of the polystichums collected during the Coke's Australian holiday a few years' ago, had grown well and displayed fine proliferous fronds (the bulbils forming on the tips of the fronds rather than the bases). A collection of adiantums filled the garage with a large plant of 'Kensington Gem' dominating the display. After trying — without much success — to name some of the unidentified ferns in Philip's collection, many members received generous gifts of plants and sporelings; *Pityrogramma argentea* seemed to be particularly popular this year and many of us were able to add this beautiful fern to our collections. Philip's fern collection proved as interesting and even more varied than before; it is a tribute to his dedication and perseverance that he managed to maintain the tender plants throughout the unusually low temperatures experienced in Gloucester during the previous winter. Both Mary and Philip took their usual care to welcome new members and make us all feel at home. Our thanks to them for their hospitality and coping with such a large party of guests.

Mary Potts

NORTH-WEST ENGLAND — 24 April. The group met in the morning at Liverpool Museum where John Edmondson, Keeper of Botany, led a tour of the herbarium. He talked about its development and showed us some of the choice fern specimens. In the afternoon the group moved to Calderstone Park Botanic Gardens where we had a tour of the fernery and other glass-houses led by Jim Gardener, Curator of the gardens. Seventeen members enjoyed this day and I would like to thank John Edmondson and Jim Gardener for having organised such an interesting visit.

4 July. Ten members met on a windy, wet day to explore Hutton Roof. The expedition lasted only a couple of hours as rain and mist drove us back down to the comfort of the cars. Leslie Dugdale had, however, made good use of the time and discovered a very fine crested male fern. Later on the group moved to Silverdale to visit Reg Kaye's nursery where, as usual, an enjoyable time was experienced by everyone.

4 September. Nine members gathered at my home to view what is, at best, a modest but, I hope, interesting collection of ferns. It was a pleasure to be able to welcome a new member, Brian Haskins, who showed us a fascinating collection of ferns he had made while a schoolboy in India. Everyone seemed to enjoy the afternoon and everyone went home with some new ferns.

The response from members has, this year, been most encouraging. I hope that next year even more can be persuaded to join us.

Nigel Hall

WEST MIDLANDS. "Welcome to Spring" Flower Show – As usual, the Solihull Horticultural Society kindly provided space for a display of ferns and BPS literature at Notcutt's Garden Centre, Monkspath, Solihull on 17 & 18 April. The display of both hardy and indoor ferns aroused much interest with particular interest shown in the Maidenhair fern. It was encouraging to be visited by six members during the show. My thanks to Ray Smith for helping me with the stand and to Mrs D Watson and the Solihull Horticultural Society for providing the stand free of charge.

Aston University Meeting – Twenty two members and guests spent the afternoon of Saturday 8th May, inspecting the Dept. of Bio.Sciences' collection of ferns. The collection consists largely of tropical species illustrating the various adaptations in the morphology of pteridophytes. Genera members found interesting were: *Lecanopteris sp. Drynaria spp.* and *Davallia spp.* together with the allies, *Psilotum sp.* and *Lycopodium sp.* Part of the fern house is unheated and used as a temperate house for hardy ferns. This much smaller collection is a mixture of British and foreign hardy ferns with special emphasis on the Osmundaceae. It is solely due to my ten year membership of this Society and to the generosity of its British and Overseas members that the Aston collection exists. May I therefore take this opportunity to thank all those members who have sent me plants and spores in the past. They have provided the Dept. with an interesting teaching collection and have provided me with much enjoyment.

Ray and Rita Coughlin's Open Day on the 19th June – thirty members and guests eagerly accepted Ray and Rita's kind invitation to visit their garden. Although the day began with long periods of heavy rain, the afternoon proved to be dry and the garden was enjoyed in comfort. The small propagating house was particularly interesting with numerous small pots of spore sowings at various stages and several trays of recently pricked out prothalli. If spores are sown thickly development of the prothalli and subsequent fertilisation tends to be arrested; Ray explained that they avoided this by pricking out the prothalli in small clumps into seed trays containing John Innes Seed Compost. Proof of this sound practice was everywhere with many trays of recently pricked out prothalli with the first tiny fronds of a new generation of ferns just beginning to show. Various parts of the garden were set aside as nursery areas while most of the shrubberies and borders were planted with fine specimens of mature ferns, readily at hand to provide spores for next year's crop. Late in the afternoon, members found themselves torn between the delightful light refreshments provided by Rita in the house and the lure of an exciting garden. In such surroundings, time passes much too quickly. Thanks are due to Ray and Rita for allowing us to enjoy their home and garden, and to Mary Coke and Audrey Cartwright for their assistance with the refreshments.

Martin and Hazel Rickard's Open Day – As part of the National programme, Martin and Hazel kindly invited West Midland members to attend their Open Day on the 28th of August. This popular weekend resulted in what must be one of the largest gatherings of members ever seen on a field weekend. 51 members and guests enjoyed Martin and Hazel's new home and garden at Leinthall Starkes, Herefordshire. It is unnecessary for me to repeat my report of the Ludlow Weekend, lead by Martin, which will be found elsewhere in this Bulletin. Suffice to say that we are greatly indebted to Martin and Hazel for their kind invitation and for providing us with a mountain of refreshments which formed part of a thoroughly entertaining day. Many thanks to Martin and Hazel, from everyone who enjoyed their hospitality that day.

The Illustrated Wine and Cheese Party — On the evening of the 21st October, 17 members and guests gathered at Aston University for what has become a popular annual event. Dr Alan Willmot, Richard Lamb, John Collins, Ray Smith, Alan Ogden and I brought along colour-slides of this season's finds and activities. I began the evening's entertainment with highlights of a 8mm cinefilm recorded by James Crabbe, of scenes of Society meetings between 1960 and 1967. Many of the Society's best known members were evident but it was particularly interesting to see Percy Greenfield taking part in the Society's visits to Somerset and Scotland in the early sixties. I hope to prepare the film for general showing early next year. Notable slides of the evening were: Alan Willmot's mysterious *Equisetum sp.* found in Ireland, Richard Lamb's slide of *Anogramma Leptophylla* taken while on holiday in the Mediterranean area. Ray Smith's splendid attempts at low power phytomicrography, showing close-ups of thelypteris and cystopteris sori. Thanks are due to all the members who attended and those who brought slides and to Margaret Busby and Valerie Ogden for preparing the refreshments.

A R Busby

WEEKEND MEETINGS

Derbyshire — 12/13 June. This meeting was attended for all or part of the time by about 20 members and guests. The aim of the meeting was to show people the common ferns of the area plus the specialities of the region. On the first day we concentrated on the limestone areas of the White Peak and on the second day we looked at the Millstone Grit and shale by way of a contrast.

On the Saturday morning the resident members collected in Derby and we moved off to our assembly point at Parsley Hay car park. We walked from here down the Tissington Trail branching off soon onto the High Peak Trail into the Blake Moor cutting. This is a Derbyshire Naturalists' Trust (DNT) nature reserve managed under a licence from the Peak Park Joint Planning Board. It forms part of the disused High Peak Railway line and is cut through carboniferous limestone. The walls of this cutting are one of the best places to see limestone outcrop ferns in Derbyshire and we found nine species. Notable were *Gymnocarpium robertianum,* which is normally more at home in screes, and *Asplenium viride,* which more commonly occurs on mountains. Also present were *A. trichomanes, A. ruta-muraria, A. scolopendrium, Cystopteris fragilis, Dryopteris filix-mas, Polypodium vulgare* and *Polystichum aculeatum.* The record for *Polypodium vulgare* was strange as we expected *P. interjectum* on limestone. However, several specimens were checked and they were all *P. vulgare.* In places on sides of the cutting there are pockets of acid soil due to leaching or deposits of silica sand. These had quite a different flora of acid-loving plants including *Dryopteris dilatata, D. filix-mas, D. affinis, Blechnum spicant* and *Oreopteris limbosperma.*

We then retraced our steps to the Tissington Trail and walked a little further south to another cutting reserve of the Naturalists' Trust. This was Parsley Hay cutting. This cutting is also through carboniferous limestone and physically looks very like the first cutting. However, a difference in the rock causes this cutting to be far less vegetated than the first and we found only four species of fern here: *Asplenium ruta-muraria, A. trichomanes, A. scolopendrium* and *Dryopteris filix-mas,* all in small amount.

After lunch we moved off to Litton Mill and despite some trouble parking our cars set off to explore yet another cutting on a disused railway line. Near the mill we saw our first horsetails, *Equisetum arvense* in tall, calcareous grassland by the road and *E. fluviatile* in marshy areas by the river. The path to the railway line crosses the river and passes up steeply through a deciduous wood. Here there were large stands of *Dryopteris filid-mas*, the commonest fern in such woods in the area on limestone. However, also present were the more acid-loving *D. dilatata* and *D. affinis,* the former growing only amongst tree roots and on the rotten remains of tree stumps. Finally, one plant of *Polystichum setiferum* was found. The fern flora of the cutting was similar to that of Blake Moor with seven species in all. There was *Asplenium trichomanes, A. ruta-muraria, Dryopteris affinis, Polystichum aculeatum, Gymnocarpium robertianum* and this time *Polypodium interjectum.* Nick Hards then showed us what we had come to see in this cutting. *Dryopteris villarii,* a plant he had discovered here a few years previously. This species is almost exclusively confined to the limestone pavements of northern England in the British Isles, but occurs on two cuttings in Derbyshire. We then discussed how this plant might have jumped to here from its northern home and why it should have waited for the cutting of railway lines to do so. We came to no conclusions but amused ourselves with pictures of fern-loving engine drivers scattering spores as they travelled through the countryside. Before leaving the area, we walked up the public footpath on the steep slope to the south onto the Selby Reserve of the DNT. This is a superb area of limestone grassland and an SSSI. Here Nick showed us a few plants of *Botrychium lunaria* which is much commoner higher up on the slope near some old lead mines.

Our final visit of the day was to the southern end of the Monk's Dale reserve of the Nature Conservancy Council. As time was pressing and the weather deteriorating we did not have time to do justice to this magnificent area. We found the common ferns of the dales and what we came to see, the large stands of *Gymnocarpium robertianum* growing in its preferred habitat of limestone scree. We were also rewarded with a new locality in the dale for *Botrychium lunaria* growing in short, limestone turf, found by Nick Hards just as we were about to turn back.

A slightly smaller party assembled next day at Grindleford Station to explore the more acid areas of the county. We walked from the station into Padley Wood, an area of oak/birch woodland in a narrow valley administered by the National Trust. This is probably an area of relict, natural woodland left uncleared because of the clitter of gritstone boulders on the floor of the valley. We found no rarities here but despite the sheep grazing, saw the range of ferns typical of such gritstone edge woods: *Dryopteris filix-mas, D. affinis, D. dilatata, Blechnum spicant, Oreopteris limbosperma, Athyrium filix-femina* and *Pteridium aquilinum.* This gave newer members the chance to see the differences between these common woodland ferns.

After lunch we moved on to our final site for the weekend, Abney Clough. This is also a narrow, wooded valley but this time on shale. The soil is still acid here. We found all the ferns that we had found in Padley Wood though growing in a greater range of habitats, including coniferous plantations and acid grassland as well as deciduous woodland. We then set about looking for what we had come to see, the rarer *Gymnocarpium dryopteris* and *Phegopteris connectilis.* We found the former at one spot only, growing on a stony earth bank with *Dryopteris dilatata, D. affinis, Athyrium filix-femina* and *Oreopteris limbosperma.* The latter we found at two places further down the clough in deciduous woodland with the common woodland ferns of the area. In marshy areas throughout the clough there were stands of *Equisetum arvense* and *E. fluviatile* and ine one area near Stoke Ford an unusual looking horsetail. We thought this was probably *E. x litorale* but took specimens for expert determination to be sure. We found one other fern in the clough that surprisingly we had not found earlier, this was *Asplenium adiantum-nigrum.* It was growing in a drystone, gritstone wall near the *Gymnocarpium dryopteris.*

Overall we found on the weekend some 22 species of fern, 2 horsetails and one possible hybrid horsetail. As we were in a well worked area at known sites, we made no new records but we saw all we set out to see. New members and guests saw a range of common fern species while we all saw some of the pteridophyte specialities of Derbyshire.

Alan Willmot

Ludwell, Dorset – 6/8 August. On the Friday evening a small party of us congregated at the Grove House Hotel in the village of Ludwell near Shaftesbury, and on the edge of the Donhead country. Four of us sat down to dinner in this very comfortable and welcoming hotel, Pat and Eric Roberts from Surrey, Paul Ripley from Kent and myself from Essex. A friend of mine from Shaftesbury joined us – he is a very keen and skilful gardener but I have not yet been able to convert him to ferns!

On the following morning (Saturday) we were joined by Philip Coke and Martin Rickard, so that a party of six set off after breakfast to explore the Donheads, a beautiful hilly district just north of our centre and dominated by the two lovely small villages of Donhead St Andrew and Donhead St Mary. Our chief fern interests were the banks along the lanes, the old stone walls in the villages and – we have to admit it! – peeping over garden walls to see what ferns, if any, their owners grow! This can be most profitable at times, and many a good fern can be acquired by means of a little courtesy and diplomacy! It did not produce any results on this occasion, however, although we got permission to look over an old deserted garden which had belonged at one time to a member of our Society. Only a few of our common species were noted in this overgrown wilderness along with a couple of foreign hardy ferns which must have "escaped" from cultivation and were growing happily in a sheltered wall corner. Earlier in the day we were invited by one of the local big estate owners, after being "caught" peeping into his extensive grounds, to visit his beautiful garden, a courtesy which was greatly appreciated by us. It was not a ferny garden, apart from some wall species growing on old walls.

On Sunday only Philip Coke and I were left and we went further afield as far as Tisbury and tried to explore the old Castle Ditches near there (Grid ref 31/9628). Brambles and nettles covered the site and few ferns were seen except some *Polystichum setiferum* in one place and *Dryopteris affinis* in another. Old Waldour Castle (31/9326) was visited in the hope that the ruined walls would harbour some ferns but not a single one was seen on this very well kept four-square ruin.

All the ferns seen during the weekend were the predictable ones for the area, the common *Dryopteris* species, *Athyrium filix-femina,* some *Polystichum setiferum* and *Asplenium scolopendrium.* Old walls were mostly bare, but a few species were seen on some of them, *A. scolopendrium* chiefly and *A. ruta-muraria.* No *A. trichomanes* was found, rather surprisingly, but some *A. ceterach* was found on one wall. We were blessed with dry weather, and although not over-productive in ferns, the weekend was a pleasant and enjoyable one.

J W Dyce

Ludlow, Shropshire – 26/30 August. The Ludlow meeting enabled members to explore an area rarely visited by the Society. Our leader, Martin Rickard, readily admitted that, although he has resided in the area for the past 12 months, he had little explored the sites we were to visit. Martin's choice of centre was excellent, Bowling Green House which stands just above Whitcliffe on the outskirts of Ludlow with a superb view of Ludlow Castle, the town and, as a "backcloth", Titterstone Clee Hill.

The first day's ramblings began with a walk from the hotel down on to Whitcliffe, a limestone escarpment immediately above the River Teme. The inevitable four quickly came into view: *Pteridium aquilinum, Dryopteris filix-mas, D. dilatata* and *D. affinis,* the latter being a surprise new record for square 32/57. *Polypodium interjectum* was the next find amongst which the Secretary discovered a very respectable *P. interjectum* 'Serratum'. Further along the cliff the Lady fern, *Athyrium filix-femina* was abundant as were the spleenworts, *Asplenium trichomanes* and *A. scolopendrium.* Mark Henshall pointed out a small clump of brittle bladder fern, *Cystopteris fragilis*, which proved to be another new record for 32/57. It is surprising that these records are not already in the Atlas of Ferns 1978 as Whitcliffe has been extensively botanised for over 100 years or so. Other ferns on the cliff were *Polystichum setiferum* and *P. aculeatum.*

We moved across the river to examine the walls of Ludlow Castle. Here we found *Asplenium adiantum-nigrum* and *A. ruta-muraria*, also, topping the wall of the castle, *Polypodium australe.* With great resourcefulness Mary Gibby collected some fronds of this, enabling us to discuss the differences between this species and *P. vulgare* and *P. interjectum* which were also present.

After lunch at the Clive Arms at Bromfield, we moved on to Downton Gorge, a private estate, part of which is designated as a SSSI. In this area we were able to add to our list *Oreopteris limbosperma, Gymnocarpium dryopteris* and, as a new record for square 32/47, *Polypodium vulgare.* The scenery here and the numerous 18th and 19th century follies added to the interest of the afternoon.

27 members had enjoyed the first day's forays but Saturday, the second day of the meeting, was the reason for this meeting having so much 'pull' with members. Martin and Hazel had agreed to open their house and garden to members during the afternoon and had also invited West Midland members to attend as a regional meeting. While Martin and Hazel prepared for the certain invasion, the Secretary led the meeting to Fishponds Valley, a National Trust property close to Croft Castle. This attractive area, obviously man-made as a fishery many years ago, gave us the usual ferns locally: *Dryopteris filix-mas, D. affinis, D. dilatata,* a small quantity of *Asplenium trichomanes,* our first *Blechnum spicant,* more *Polystichum setiferum* and a new record for square 32/46, *P. aculeatum.* A fallen oak tree gave us an abundance of *Polypodium interjectum. Equisetum fluviatile* was spotted in one of the ponds.

After lunch at the Compasses at Wigmore, the meeting moved on to Martin and Hazel's home at Leinthall Starkes. The Rickard's new home is provided with a large, shrubby garden which slopes to the north-west. Martin explained that it had been a monumental task to move his fern collection from Cambridge to Herefordshire during the growing season last year. Pride of place goes to his polypodium collection now settled into their own border. With very little prompting, Martin pointed out several of his treasures and explained his recent researches into lost and recently found polypodium cultivars. (See The Bulletin, Vol.2, No.3, Page 138). Considering their recent planting and the dry periods experienced earlier this season, the fern collection looked very healthy and happy in their new home. Ferns that caught my eye were: *Asplenium X alternifolium,* common enough in parts of Europe but rare in Britain and rarely seen in fern collections, and *Dryopteris crispifolia,* a fern new to most of us and one I know nothing about but deserves wider cultivation. (See article by Mary Gibby et al in Bot. Journ. Linn. Soc., 74: 251-277. Ed.) Hazel Rickard kindly provided an excellent range of refreshments with Alison Paul and Kathy Kavanagh providing willing hands. Such was the draw of Martin's open day that an estimated 42 members and guests took advantage of the invitation.

Sunday dawned with threatening skies and the party, now 35 strong, met at Martin Rickard's so that he could lead the meeting to Gatley Long Coppice. This large plantation, formed mainly of conifer trees with a perimeter of deciduous species is considered by Martin as his 'Back Yard'. *Dryopteris dilatata,* although abundant here and in Fish Ponds Valley, proved to be a new record for square 32/46. Not surprisingly, the other common dryopteris, both polystichums, athyrium and *Oreopteris limbosperma* were recorded. Martin took great pleasure in showing the members a surprising discovery of his in this wood. A solitary plant of the Hay Scented Fern, *Dryopteris aemula* growing on an old rotting log. No other colony of this rarity is currently known in the Midlands. Amongst the *Blechnum spicant,* the Secretary found an interesting bifid form, and *Polypodium vulgare* proved to be another new record for square 32/46. Chris Page attempted to explain to members the different sub-species in *Dryopteris pseudomas* (now *Dryopteris affinis*) and promised to collect typical fronds of each for a brief lecture later on in the day. (Subsp. borreri and robusta were recorded.) Other ferns of note seen here were *Phegopteris connectilis,* (Beech Fern) and *Gymnocarpium dryopteris* (Oak Fern).

After lunch at the Compasses, the weather, which had been threatening all day, kept its promise, and the hills became shrouded in fine, mizzling rain. The meeting moved on to explore the walls of Wigmore Castle and Martin showed us a fine colony of *Polypodium australe,* another new record for square 32/46. Other ferns on the castle were *Polypodium interjectum, Asplenium trichomanes* and *A ruta-muraria.* After suffering the rain for an hour or so we returned to Martin's home where Hazel prepared a welcome cup of tea.

After browsing through Martin's extensive collection of fern books and county floras, Chris Page gave his promised talk on the sub-species of *Dryopteris affinis.* I will not attempt to summarise his remarks on this complex subject but refer the reader to the Bulletin Vol. 2, No. 3, p. 133. During the afternoon Jimmy Dyce kindly made a special journey back to the centre to collect a sample of books from the BPS Booksales for members to browse through and purchase. By late afternoon, the weather cleared enabling Martin to lead some members to Mary Knoll Valley, where they could see *Dryopteris carthusiana* for the first time and have the differences between it and *Dryopteris dilatata* explained. A brief search began for the hybrid *Dryopteris x deweveri* after Mary Gibby had explained what to look for but it was unsuccessful. Further up the valley a fine colony of *Equisetum sylvaticum* was seen.

Monday started cloudy but dry and Martin led the party to Gatley Park Woods, an area with dryopteris, polystichums and polypodiums, which he thought might prove interesting, but no departures from the normal were seen. *Athyrium filix-femina* and *Blechnum spicant* were also present. Moving on to Aymestrey Quarry, a ferny site mentioned in Edward Newman's book 'British Ferns' published in 1854, we hoped to rediscover the Beech fern, *Phegopteris connectilis,* but only the usual aspleniums, dryopteris, polystichums and polypodiums were evident. During the journey from Gatley Park to Aymestrey Quarry, *Asplenium ceterach* was noted on a fold yard wall. This gave the twenty-second fern species for the meeting. In addition three allies were noted during the weekend, namely *Equisetum arvense, E. fluviatile and E. sylvaticum.*

During lunch at the 'Crown' at Aymestrey, it was decided that the meeting should visit Burford House near Tenbury, to see an exhibition of paintings by Mrs Gwladys Tonge, a member who had been with the meeting throughout the weekend, and also to give members a chance to visit the garden and nursery of John Treasure. Heavy rain greeted our arrival at Burford House, so we were grateful to shelter in the exhibition and enjoy Gwladys's lovely paintings of ferns and flowers. Later in the afternoon we were delighted to be joined by John Treasure for a personal tour of his garden.

Ferns are a recent introduction to the garden and it was pleasing to see evidence of correct and careful labelling. A number of rarities feature in this growing collection at Burford House, notably *Asplenium scolopendrium* 'Peraferens' and *Polystichum prescottianum.* A visit to Burford House is a 'must' for fern growers visiting the area. The meeting ended with members visiting the production unit at the nursery enabling them to purchase ferns for their gardens.

Thanks are due to: Hazel Rickard for providing refreshments and putting up with us on two occasions, Mary, Kathy, Julie and Alison for helping Hazel, to Chris Page for taking the trouble to explain the *Dryopteris affinis* complex once again, to Jimmy Dyce for organising BPS Booksales, to John Treasure for spending part of the afternoon with us at Burford House, to Gwladys Tonge for giving us the opportunity to see her work, and to Martin Rickard for providing us with a full and interesting weekend which proved to be an object lesson in how to organise a meeting at which a total of 51 members and friends were present for part or all of the time – a long weekend which proved to be far too short.

A R Busby

Newcastle Emlyn, South-west Wales – 10/18 July 1982. After the interesting weekend we spent in this area last year, I had high hopes that this would be a well-attended meeting. Alas! it turned out to be an extremely poorly attended one – and more so because our President, Clive Jermy, who had planned to attend with two members of his staff, unfortunately had to go into hospital at the last moment, and I gave car transport to the one Natural History Museum botanist, Alison Paul, who elected still to go. It would have been a lonely week for me otherwise, for it turned out that we were the only two attending for the whole period of the meeting. We were on our own until the Wednesday evening when Gerald Harrison, Keeper of Botany at the National Museum of Wales in Cardiff, joined us for a couple of days, and Alf and Ray Hoare arrived to join us for the rest of the meeting. Martin Rickard and family arrived on Thursday, completing our party.

Apart from the Rickards, we were all housed in the Centre hotel, the Emlyn Arms, and we enjoyed the same hospitality there that we had experienced last year – apart from one thing. The hotel heating system went wrong for some days and the nights had a tropical flavour about them which made sleep difficult!

There were still several fern species which Alison had not seen in their native habitats, so the first part of the week, until the other members arrived, was occupied chiefly in running around the area to places where she could hope to see some of them. By taking a circuitous route on our journey to Newcastle Emlyn I was able to let her see *Asplenium septentrionale* in Central Wales, and on two occasions during the week *Dryopteris aemula* was seen. A special journey was made to Dryslwyn Castle near Llandeilo (Grid ref. 22/5520) to see *Polypodium australe.* Unfortunately, extensive preservation work is in progress on the ruins and the fern has disappeared from the castle walls. However, it is still in abundance on the remains of the surrounding walls, and possibly the plants will not be disturbed.

Asplenium marinum is recorded from the sea cliffs at various places around the coast north of our centre, and on two days we explored along the coast to the east and west of Aberporth. Our quest was a vain one, but we were handicapped by the fact that the cliffs are very steep with very few places where we could get down to the beach below. Also, they seemed to be the wrong kind of rock, a loose shale which would provide very few places permanent enough for ferns to establish themselves. We did find a few ferns in one place, two or three small colonies of *A. adiantum-nigrum,* which raised our hopes that the Sea Spleenwort could also be around; if so we did not find it. There are a few sandy coves on this coast, but beyond them the sea comes right up to the rocks and in only very few places does it seem to recede enough to allow passage below the cliffs; and needless to add, the tide was always in during our visits to such places!

On our first coast visit we worked east from Aberporth and on the second we started further west at Traith-y-Mwnt (22/1951) and finished up at Aberporth. Ferns in the area are the common ones, some *A. adiantum-nigrum* on roadside banks, *A. trichomanes* in places on walls and banks, *Dryopteris affinis, D. filix-mas* and *D. dilatata* in fair quantity, also some *Blechnum spicant* and *A. scolopendrium.* The polypodies are common and both species, *P. vulgare* and *P. interjectum* were noted. Occasionally we came across *P. setiferum; Pteridium aquilinum* was common.

At Penbryn (22/2952) a deep ravine valley runs down to the sea. Our search for *A. marinum* was, as usual, unsuccessful, but we had a most interesting time in the higher reaches of the ravine inland from the village. The stream was only a trickle and with wellingtons we were able to walk up it and explore the steep banks. I can safely say that this ranks among the most ferny places I have encountered in Britain. Not only was it very ferny but all the species growing there were an exceptionally large size — 5 feet and even more was the normal. The number of species was not large — we recorded 9, *A. filix-femina, D. affinis, D. dilatata, D. filix-mas, A. scolopendrium, P. setiferum, P. interjectum, P. vulgare* and *Equisetum telmateia.* The Lady Ferns were very wide fronded and very plumose and most of them seemed to have very deeply incised pinnules. The Male Ferns were magnificent, particularly *D. affinis* with many specimens of the subspecies *robusta.* The Soft-shield Ferns seemed to be mostly the variety *Subtripinnatum,* and even the scolopendriums had very long fronds, many of them very undulate, and some of them had apical division. It seemed a good place to find a fern variety but no luck attended my careful scrutiny as we splashed up the stream. Only when it became too overgrown and impenetrable did we retrace our steps, but we felt this spot had really made our day. Along the roadside here was one of the few places where we found *P. setiferum* growing in abundance, clothing the south-facing banks along with *A. adiantum-nigrum.*

On another day we hunted down the Afon Cych valley and penetrated up the side valley of the Afon Dula which is well-wooded and has an abundance of ferns but only the more common species were noted with polypodies in great numbers on banks and walls. An exciting find was a single plant of *D. aemula.* Searching around up the wooded slopes we hoped to find more but were unsuccessful. This fern is recorded for this grid square in the *Fern Atlas.* We also visited the goldmine area at Pumpsaint (22/6640). Last year our hunting here was restricted by rain but this time we were able to wander freely and found that the interest it seemed to promise during that first visit was not fulfilled. We saw our first *Oreopteris limbosperma* here. On the way there we made a diversion to chase up a record for *D. carthusiana* in some very marshy ground near Gorsgoch (22/4850). We were able to find the fern, which seems to be far from common in this part of Wales.

On Thursday, our numbers increased by the arrival on the previous evening of Gerald Harrison and the two Hoares, we explored up a very narrow road running up a rather wild narrow valley north of Llandyfriog. The terrain became more and more ferny but the road more and more narrow and rough until it deteriorated into a rutted track. We were committed, it was impossible to turn, but fortunately it finished at a farm and we were able to turn and bump and slither our way back along the muddy ruts until we reached a side track where we were able to stop and explore the ferny jungle. All the ferns were the common woodland species. Once again *D. affinis* subsp. *robusta* was present, growing to a great size with fronds up to 6 feet high. Equally large was some impressive *D. affinis* subsp. *affinis* with the very stout stipes very densely covered with rich golden scales. It was a most interesting place.

In the afternoon, with the arrival of the Rickards, the party travelled west to Llechryd where we parked the cars at the hotel (22/2143) past which the Afon Teifi flows. Here it was a very respectable fast-flowing river, its waters greatly augmented, since flowing through Newcastle Emlyn, by the contributions of several large tributaries, and also by the heavy rains of the previous night and morning. We walked downstream on the south side for about a mile from our starting point and found the valley full of ferns. For part of the way along the steep wooded slopes above us the dominant fern was *P. setiferum,* growing luxuriantly to a large size. There was some minor variation which raised hopes in Martin and myself but nothing better was seen. Further along the *F. setiferum* disappeared entirely, to be replaced by Lady and Male Ferns. Some fine *A.scolopendrium* and *P. interjectum* were seen in one place. The Lady Fern, like the polystichum, was very large-growing, most of it, as noted in other places, with very deeply incised pinnules. Later, up a deep side-valley near the hotel, which was even more fern-rich, the incisum type was even larger and a magnificent specimen was collected — it was really more than 'Incisum' and was quite a respectable plumose form. Hopefully, its spores may produce something really good. The other ferns seen were very much the usual selection — *B. spicant, D. dilatata, D. filix-mas* and again very large magnificent *D. affinis* subsp. *robusta.*

A quick hunt along the Afon Cych valley on Friday produced nothing we had not seen on our previous visit, and in the afternoon we moved on to an interesting place near the hotel at which the Rickards were staying, a few miles to the east of Newcastle Emlyn. A disused railway track runs through some woodland here and on the slopes, among other species, there was abundant *A. scolopendrium* and *P. setiferum.* Some of the former showed some signs of variation but nothing worth collecting was seen.

On Saturday, again with *A. marinum* in mind, we travelled further to the west, beyond Cardigan to the Newport area, stopping en route in a deep wooded valley which we hunted briefly. In one place *P.setiferum* was abundant but the common ferns were Lady and Male Ferns. Again, the sea-cliffs along this part of the coast seemed to be the wrong kind for the Sea Spleenwort and it was not seen. On our return journey we stopped near Berry Hill (22/0640) to explore the deep wooded valley of the Afon Nyfer which enters the sea at nearby Newport. This valley provided some excellent hunting with all the usual species in abundance. Included was *D. aemula,* a new record for the *Fern Atlas* (Square 22/04). This fern is known for the square just below (22/03).

The following day, Sunday, marked the end of the meeting. A garden visit was made during the morning which was very hot and then the party split up to return home, leaving Alison and me again on our own. We spent the afternoon in a very interesting deep valley near Llanarth (22/4258). The Lady Fern and the Dryopteris species dominated the habitat and we were able to admire some of the finest *D. affinis* subsp. *robusta* seen during the week. The plants were gigantic in size, up to almost 6 feet, all single crowns making perfect shuttlecocks. This visit made a good finish to the meeting and the following morning we set off on the return journey to London.

On the whole, in spite of the lack of support for part of the week, the meeting was a successful one. The countryside in this corner of Wales is very ferny and the plants grow to a very large size, particularly *A. filix-femina* and *D. affinis* It was noticed how most of the former all over the area was really good var. *incisum. P. aculeatum* was not seen this time in our hunting area, although noted on our previous visit near Cwmcoy. On our way home we were able to see this fern when we stopped near Trecastle on the A40 road to visit a very large colony of very typical Hard-shield Fern. *P. setiferum* was patchy but in some places really abundant and *D. aemula* was seen in two places. No variations were found except that one particularly fine Lady Fern with very plumose fronds was found and a crown collected from the very extensive clump. Most of the *D. affinis* seen presented botanical problems and a large collection of fronds was taken back to the British Museum (Natural History) by Alison Paul — Christopher Fraser Jenkins is going to be presented with the problems and we await his verdict in due course with great interest.

Finally, we covered a goodly mileage in the area during the 11 days we were there and saw much of this lovely corner of Wales, thanks greatly to the excellent navigating and map-reading of my companion, Alison Paul, who always led me by the most interesting route to our various destinations.

J W Dyce

MEETINGS FOR 1983

Kathryn Kavanagh

Tony Worland, Meetings Secretary for the past twelve years, relinquished the post at the end of last season. All who have attended our very enjoyable meetings will wish to thank him for his hard work. As his successor, I have tried to arrange an interesting variety of meetings for 1983 and hope that more members and their friends will take part. This is what makes the meetings a success.

The Annual General Meeting will this year be held in Aston, Birmingham and I very much hope that members who find it difficult to get to London will be able to attend. A new event in this year's calendar is the Soirée at Chelsea Physic Garden. Please make a special effort to come to this meeting. Mary Gibby's demonstration will be followed by wine and cheese and an opportunity to talk, in the garden if fine.

In September, the Biology of Pteridophytes Symposium takes place at the University of Edinburgh. We expect to attract many participants from abroad, and for these a special field meeting is being arranged. The speaker for our indoor meeting in October has not yet been decided in the hope that one of the foreign pteridologists attending the Symposium may still be in England.

In the field, we have a long weekend meeting over the Spring Bank Holiday in Northumberland, an area somewhat neglected by the Society. Chris Page and Trevor Walker will be taking us to Lindisfarne and the coast, the Cheviots, and the Northumberland 'denes', and there will also be a chance to visit the collection of tropical ferns at Newcastle University. The weekend meeting in the Ashdown Forest, led by Clive Jermy, will be based at Rogate Field Centre. We shall be able to examine material in the Centre's laboratory as well as in the field. Beginners will be especially welcome but there should be plenty of scope for everyone. Accommodation at the Centre is pleasant and inexpensive. Marion Barker and Mary Gibby have arranged a varied weekend looking at Equisetums on the Wirral coast followed by a visit to Calderstones Park in Liverpool. Other meetings include a weekend in the Wye Valley and Forest of Dean, and day visits to Oxford Botanic Garden to see the collection of cultivars brought together by our past member, Theo Dyer, and to Richard Rush's garden in Essex.

Please try to come to some of these meetings. Their success now depends on your support. If you can only come for part of a weekend or require help in finding transport or accommodation, please write to me — the address is on the inside of the front cover.

SOME SMALL AUSTRALIAN FERN SPECIES THAT ARE HARDY AND WOULD POSSIBLY SUIT ENGLISH GROWING CONDITIONS *(continued)*

Ray Best

Davallia pyxidata Cav (Davalliaceae). Commonly known as the Hare's Foot Fern. Thanks to Jimmy Dyce I have a complete set of E J Lowe's *Ferns: British and Exotic;* to those members in England who possess this work, they will find in Vol 8 pages 69 and 70, an excellent and accurate drawing of this fern along with a description. He says, quote: "Another old favourite of our gardens, easily grown, and well worthy of cultivation. A deciduous warm greenhouse fern." Etc, end of quote. Being of an epiphytic nature it can make an excellent basket subject, deciduous only in cooler areas. Fronds however do collapse after a number of years to be readily replaced. Possibly deciduous in England during winter. The long creeping rhizomes are densely covered with brown scales and tend to grow upright rather than pendulous. Fronds are triangular, tripinnate to quadripinnate, and when fertile carry sori in a marginal cup shaped indusium. Crushed egg shells with a little dolomite added to peat moss seems to assist in maintenance.

Humata tyermannii Moore (Davalliaceae) previously *Davallia tyermanii* although known to Queenslanders as the silver davallia it is not included in botanical literature as an Australian native species. However it is readily available in all states, very attractive with the massed silver scales covering the rhizomes, which are long creeping and pendulous. Young fronds are a bronze red changing to a deep green shade when mature. Strong healthy and attractive, would possibly require warmth and protection in an English winter. In an open fernhouse here it remains evergreen only occasionally losing a few old fronds. Gentle surface feeding is sufficient to keep it growing well even with rhizomes hanging 50cm below the basket.

Dennstaedtia davallioides (R Br) T Moore, (Dennstaedtiaceae), The Lacy Ground Fern. One of Australia's most attractive ground ferns; spreads readily to make a very attractive ground cover. Quite a vigorous grower it is found in Queensland, New South Wales and Victoria, covering an immense range of conditions, so it should do well in England. The family Dennstaedtiaceae is quite large and widespread with some 40 species recorded as Dennstaedtia throughout the world. Rhizomes are firm and long creeping, stipes are a warm shiny brown and deeply channelled on the upper surface; this channel continues to the primary and secondary rachids, colour graduating to a soft green. Stipes about 30cm long, approximately one third of the blade. Fronds 30cm wide at the base broadly triangular, quadripinnate, and lacy light green in a protected position, darker when exposed to sunlight. When fertile the sori are borne on lobes of the pinnae protected by a cup shaped indusium. Obviously the title *davallioides* refers to the attractive davallia-like fronds. Very useful in a ground cover or garden situation, fortunately easily controlled.

Doodia aspera (Cav) R Br (Blechnaceae). The Prickly Rasp Fern, a very beautiful strong and wiry fern. Rhizome is short creeping and covered with black scales; stipes are short and black with a number of unevenly spaced tubercules which point downwards and are covered with large individual black scales, this continues up the rachis which graduates to a light green. Fronds are upright and lance-shaped with the lower pinnae much reduced and triangular, when young they are a delightful pink shade becoming a bright red, changing to green with maturity. On fertile fronds sori are arranged in two rows on either side of the midvein of each pinna protected by a curved indusium that opens away from the midvein. The veins form a delightful pattern with the second row of sori alternating to form a pleasant geometrical design. Pinnae are sharp-toothed and coarse in texture which justifies its common name, the Prickly Rasp Fern. Suits rockeries and open situations, borders, etc., and can also make a delightful pot subject.

FERNS, THE FERN SOCIETY AND – JIMMY DYCE

(An abstract of Jimmy Dyce's Presidential Address)

Back in 1934 I knew nothing about ferns. In that year a friend in Edinburgh whom I was visiting on my way north from London, to spend my annual holiday with my parents in my childhood home in the north-east of Scotland, expressed a wish to get some plants of the Harts-tongue Fern for his garden. In my ignorance I told him the species was plentiful in my home area, Strathspey, and promised to get some plants for him. My father quickly disillusioned me, and it appeared that I was confusing the Harts-tongue (*Asplenium scolopendrium*) with the Hard Fern (*Blechnum spicant*)! The beginnings of an interest in ferns thus stirred in me, my father took the opportunity to draw my attention to other ferns in the district, notably the Oak Fern (*Gymnocarpium dryopteris*) and the Beech Fern (*Phegopteris connectilis*), and some days later I noted a tiny triangular frond growing out from a hair-crack in the pointing of a masoned granite wall in the garden. I was greatly intrigued by the explanation of its presence there – a fern spore had lodged there, obviously wind-blown from the nearest Oak Fern colony about 2 miles distant, and had produced this small plant. That did it – I was well and truly innoculated with the fern bug! One of my first tasks on returning to London was to write to my gardening journal, *Amateur Gardening*, to find out about books on ferns. The editor, A J Macself, one of the most active fern-men at the time, recommended Druery's *British Ferns and their Varieties*. On my 30th birthday in 1935 I was presented with a copy, the MOST IMPORTANT present I have ever received – this book became my bible and was soon absorbed from beginning to end.

Ferns became such an absorbing subject that it was inevitable that my friends had to suffer from my excessive enthusiasm. Visiting a close friend who had recently got married, his wife exlaimed – "My Uncle Joe grows ferns and is Treasurer of a fern society called the British Pteridological Society". A visit was arranged to meet Uncle Joe who was none other than J J Sheldon, another very active fern-man of the time, who lived at Great Bookham in Surrey. His fern collection, particularly his *Polystichum setiferum* borders, impressed me greatly. I promptly paid him my ten shillings subscription and became a member of the British Pteridological Society in 1935.

It was 4 years later in 1939 before I was able to attend my first meeting of the Society, the AGM and Annual Excursion held at Chard, centred on the George Hotel which has over the years since then become very familiar to me. A new auditor was needed, and I still remember vividly how delighted and proud I was to be elected to the post – I was "in"!

But that was the end of ferning for all of us for many years, the War years, and it was 1947 before the BPS raised its head again. I sometimes wonder if it would ever have come to life again if I had not been so impatient to continue adding to my scanty knowledge of ferns from the only source I knew. A letter to Percy Greenfield who had taken me under his wing at the Chard meeting in 1939, brought him up from Surrey to my office in London to see me, and the result was a meeting called by the President, W B Cranfield, and held in his City office in September 1947. It was attended by six members – W B Cranfield, P Greenfield, E A Elliot (Rev), A H G Alston, Professor Weiss and myself. It was reported that seven of the Society's officers had died during the War, and the general feeling was that the Society was dead and should not be revived. Mine was the only dissenting voice – the fern bug was still rampant in me and I had practically everything still to learn about ferns. Greenfield rallied to my side and between us we drove out the pessimism. Greenfield agreed to become Secretary until things got under way again, Alston undertook to edit the British Fern Gazette and I was appointed Treasurer, which included Membership

Secretary, and was given the task of tracing and rounding up the membership which had been "on the loose" for 8 years. It was a mammoth task which kept me very much occupied for the next year, but I was full of enthusiasm, I enjoyed the "sleuthing" and I was determined – for my own ferning ends! – not to allow the Society to go under. In all this I received valuable help from Greenfield, and by the end of the year I had contacted and gathered in 132 members. It is interesting to note that today five of those members and one subscriber are still with us – Jack and Jean Healey, Reginald Kaye, Irene Manton, myself and Glasnevin Botanic Garden, Dublin.

The next ten years were a struggle with our membership fluctuating around the 100 mark. Alston resigned and Elliot became Editor of the Gazette in 1949 and in 1951 took over the Secretaryship as well – in spite of the fact that he was not a fit man and progressively decreased in health until his death in 1959. He had been very well aware for years that his illness was a terminal one but he refused to give in to it. He used to refer to it as his S.O.B. – his spot of bother! However, it has to be said, but with no blame to him, that it was largely due to his illness that the Society was just "ticking over" – secretaries and editors were hard to find in our membership in those days. Greenfield was still a power and counsellor in the background but was now an old man and none too fit. The three of us virtually ran the Society, the two older experienced men making the decisions, and I, young, energetic and keen to learn, being the executive member, absorbing their knowledge and relieving them of all the more onerous work.

On Elliot's death Greenfield persuaded me to take on the secretaryship in addition to being Treasurer. Rather reluctantly I agreed and then we searched around for a new Gazette Editor. Alston who was the scientific officer in charge of the Fern Section at the British Museum (Natural History), had also died recently, and his successor, a young fern botanist, A Clive Jermy, seemed to us to be a reasonable choice. He accepted, and from that time the Society became dual in purpose, and added the botany of ferns to its previous sole role as a society catering for fern collectors and growers, chiefly of the variations of the British ferns. This, however, caused much unrest among the growers – the Gazette became too botanical in content under Clive Jermy's editorship and they were left out in the cold. As Secretary I had to suffer from a very active, and at times quite an unpleasant, stream of protest which continued with varying intensity until I retired from business in 1966. I now had more free time and one of my first jobs was to enlarge the Newsletter, until then one, or at most two foolscap roneoed sheets issued annually with information on meetings and other matters of concern to members, into a second journal containing papers of interest to growers. This did much to restore peace, and six years later I transformed it on a more permanent format into the Bulletin.

Not being limited to only a few weeks' holiday per year, I was now able, with the help of Dick Cartwright (of spore exchange fame), to expand our meetings programme, personally leading weekend and longer meetings to various ferny parts of the country until Tony Worland took over responsibility for the arranging of our field and indoor meetings in 1971. In my first expanded Newsletter in 1967 I published a list of fern books, which created quite a bit of interest and in 1969 I followed this with an article on fern books and mentioned a few I had acquired which were for sale – *BPS Booksales* was born! Also over the years the distribution of our two journals has become more and more my sole responsibility.

But time has not stood still, and with advancing years I began to feel the strain. All the functions of the Society with the exception of the editorship of the Fern Gazette, were largely in my hands until 1975 when I began to divest myself of them – in that year Barry Thomas took over the Treasurership, in 1977 Philip Coke became Membership Secretary, in 1979 Matt Busby became Secretary and Martin Rickard became Editor of the Bulletin. In that year, on retiring from the Secretaryship, I was elected President and now in 1982 I have relinquished this Office, being left with my Booksales and journal distribution. Now I am looking for someone to take the custody and distribution of the Fern Gazette and the Bulletin off my hands. Selfishly, I want to hang on to Booksales for a little longer — I love fern books, old and new, and I enjoy the job of gathering them in from all sources, on a practically worldwide basis, and to offer a wide selection annually to our members. Sadly, this job will also have to be relinquished within the next few years, but I am hoping to be around still for many years yet, although taking less and less active interest in the Society's affairs. However, I am happy that I am leaving "my" Society in good hands. No doubt the next decade will see changes; the inhibiting influence of one man at the helm for so long has been removed, although I have never been averse to the introduction of new ideas — I hope! A bit stubborn at times, possibly!! A feeling of "respect" for the "old man" (!!!) among my younger colleagues has possibly restrained their enthusiasm for change, but now that restraint has been removed — good luck to all of them! The centenary of our Society is fast approaching, and I hope to live long enough to see this celebrated in great style and a good start made for the next 100 years.

THE MAPPLEBECK COLLECTION

G W Hearn, MBE, MD, FRCP

My interest in ferns began in the early sixties from the need to furnish a damp, tree-shaded area in my suburban garden in Moseley, Birmingham. I tried out a number of ferns collected from a wood in the West Country where they grew in profusion and needed thinning. These I subsequently learned to identify as *D. filix-mas, D. pseudomas (D. affinis), D. dilatata* and *A. filix-femina.*

These ferns did well; I became more interested, discovered Reginald Kaye's book and subsequently visited his nursery where I acquired a number of variants of common ferns. I later became a member of the Society.

In 1970, or thereabouts, a medical colleague, knowing my interest, offered me some ferns she would need to remove from her garden to make room for a garage. She believed they were of some rarity, having been the object of interest by the Curator of the Botanical Gardens, Birmingham, many years before. I accepted gratefully, of course, and was presented with a number of fern roots, which developed into crested ferns of *D. filix-mas* and *A. filix-femina*, an *A.f.* 'Grandiceps' and another graceful fern that I was unable to identify. I sent a frond to Mr Reginald Kaye, who very kindly identified it as *A.f.* 'Mediadeficiens polydactylum' and added that "this appeared to be a better form than some which are in cultivation".

These ferns have flourished in my border, which is obviously a very suitable habitat, although they have not multiplied. To these have since been added a number of ferns acquired from a variety of sources including greatly appreciated gifts from fellow members of the Society. By 1980 I had some 50 varieties growing in the fern border, and wondered whether the time had come to show them to members of the Midlands branch of the Society.

I invited Matt Busby to give an opinion and received an enthusiastic affirmative answer. He admired the *A.f.* 'Mediadeficiens polydactylum' and I told him how it came into my possession, adding that I suspected this, and several others, were from a collection that had been in Moseley for 100 years, for the eighteen eighties were a time of great interest in ferns. He immediately became deeply interested and said that he wondered whether these ferns originally belonged to Mr J E Mapplebeck of Hartfield, Moseley;

he was an early member of the Pteridological Society and had, at one time, a well known fern collection, the whereabouts of which was not known. This was in August 1980.

I was not able to pursue the matter for another month. Then I telephoned my colleague who told me she had moved from the house two years previously, but gave me the name of the present owners, telling me that the name of the house was 'Hartfield', which excited interest. She recalled how the previous owner had purchased the house in 1912 and that this was the first date on the deeds as the property had been divided at that time; but the house was the original house, and much older. She also recalled that her builder had known the house, as a boy, because his father had worked on it when the previous owner moved in. I contacted him, found him a very senior citizen, interested and helpful. He recalled that at that time (1912) there were a number of ferns in the garden, and the fronds had been sent to the Botanical Garden for identification.

The next step was a telephone call to the Local Studies Department at the Central Reference Library, Birmingham, the staff of which I knew to be both excellently informed about local history and unfailingly helpful. Was there any way of learning where a Mr J E Mapplebeck lived in Moseley in – at a guess – 1880? Indeed there was; they still had the directories. Within two minutes we had the answer. Mr J E Mapplebeck lived at 'Hartfield', Stoney Lane, Sparkhill in 1880. A contemporary map indicated that this was, indeed, the house, although the address had changed over the years. He was a metal broker. The address of his place of business was given.

So the site of the Mapplebeck Collection had been found; and some of those strains were in my possession, possibly some of his specimens, since ferns survive for many, many years.

Matt Busby greeted the news with his usual infectious enthusiasm and referred me to Charles T. Druery's book, 'British Ferns and their Varieties', Routledge, London, undated (1910) where there were nature prints of ferns attributed to J E Mapplebeck. Fortunately I had a copy and found three listed:

1. *Lastrea pseudomas* 'Polydactyla, Mapplebeck' (p. 304)
2. *Lastrea dilatata* 'Cristata' (p. 296)
3. *Polystichum angulare* 'Acrocladon' (p. 370)

And in the text is a reference to:

4. *Athyrium filix-femina* 'Caput medusae' (p. 86)

None of these were, alas, in my collection. By kind permission of the present owners, Matt Busby and I visited the garden at 'Hartfield'. A number of variants of common ferns were still growing there, a crested *A. filix-femina*, a crested *D. filix-mas*, and a handsome large depauperate variety, probably of *D. filix-mas.* We peered over fences into neighbouring gardens which had been part of the original property. But nothing further of interest was observed.

The only other question that arises is whether the Mapplebeck Collection was the source of other ferns that have been growing in certain Moseley gardens for many years. *Osmunda regalis, Polystichum setiferum* 'Acutilobum' and *Polystichum setiferum* 'Lineare'. It seems possible.

Spores from some of the Mapplebeck ferns are now in the possession of Mr Ray Coughlin so we can look forward to the day when these ferns are firmly re-restablished.

For interested members a short biography of J E Mapplebeck is available on application to the Secretary of the Society.

It is also of interest that the metal-broker firm of J E Mapplebeck Ltd. still continues to this day under that name at Frankfort Street, Aston, Birmingham — the present joint manager Mr R W Brosch being the descendant of the Richard William Brosch who took over the firm from J E Mapplebeck in 1908.

A NORTH AMERICAN POLYPODY NATURALIZED IN BELGIUM

R H Roberts

In June 1980 I received a piece of *Polypodium* which had been gathered in Bruges, Belgium, a week previously. It had been found growing on the stonework of a bridge over one of the city's numerous canals.

At first sight it looked like a small *P.vulgare* or *P.interjectum,* but closer examination, particularly of the sporangia, showed that it could not be identified with any of the European species. As it seemed to answer closely to the description of the North American species *P.hesperium* Maxon, pressed fronds were sent to Professor Frank A Lang of Southern Oregon State College, Ashland, who kindly examined the material and confirmed it as this species.

P. hesperium is one of several North American species belonging to the *P. vulgare* complex. It was formerly placed as a variety under *P. vulgare* L., then raised to the rank of species at the beginning of the century. Cytological work pioneered by Professor I Manton, and followed up by several American workers in the 1950s and 1960s, proved that two cytological races were involved, a diploid and a tetraploid. A critical study by Professor Lang using modern biosystematic methods showed that the cytological races could be separated on their morphology. They were consequently recognised as two distinct species, and the epithet *hesperium* was shown to belong to the tetraploid race. The diploid now became *P. montense* F.A.Lang.

P. hesperium occurs as a native plant in the Pacific Northwest of North America, where it grows on rocks or in rock crevices. It seems to have found a suitable habitat on the stonework of a bridge in Bruges, but how it got there is a mystery.

Although the piece of rhizome brought to me in 1980 had been allowed to dry for about a fortnight, it revived after soaking in water for 48 hours and has been growing since in garden soil in a clay pot. It starts putting up new fronds in mid-May and early June, and spores are shed from mid-August onwards.

In cultivation *P. hesperium* is rather a small plant, similar in size to *P. vulgare.* Its fronds are lanceolate in outline with a mean length of 14 cm and mean width of 4.3 cm, and the pinnae are rather short, broad and blunt. Sorus shape is oval and the position of the sori mid-way between the costa and the margin, or occasionally a little nearer to the pinna margin. In these features it is similar to many plants of *P. interjectum.*

Sporangium characers, however, readily distinguish it from the European species. The annulus of the sporangium has a mean of 12 indurated cells (range 8-18) with 2-3(-4) basal cells, i.e. between the proximal end of the annulus and the sporangium stalk. The colour and width of the annulus are similar to those of *P. vulgare,* but the indurated cells are as short as they are in *P. australe,* so that the appearance of the dehisced sporangium is quite different from that of any of our European species.

I am grateful to Mr H S Chapman for sending me this interesting fern from Bruges and to Professor Frank A Lang for confirming the identification.

VICTORIAN FERN NURSERYMEN

Nigel Hall

It is something of a paradox that as the Victorian fern craze began to wane so the age of the specialist fern nurseryman began. The fern craze, according to Allen (1969), had begun to fade by the mid-eighteen-sixties yet most of the great fern nurseries had either to begin or to reach their peak. There are a number of reasons for this apparent paradox. Clearly, in the first instance, existing nurserymen were in a better position to accommodate the rapidly growing interest of the Victorian middle-classes. General nurserymen did much to foster greater public awareness of the utility and worth of ferns. For those nurserymen ferns were only a part of their overall business. It was also the case that a great deal of the middle-class interest was centred around actually collecting ferns. It was British ferns that attracted the public attention rather than the quickly-grown greenhouse ferns beloved by the nurserymen. The increasing interest in the varieties of the British species of ferns was generating a new market less easily filled by nurseries preoccupied by the more tender ferns.

The last forty years of the nineteenth century saw a shift of emphasis in public interest. One indicator of this shift was the nature of the books on ferns published in the nineteenth century. While the fern craze was at its height the books were predominantly about the distribution, description and collection of British ferns. Later in the century the emphasis was more on the cultivation of ferns. This change (incidently coinciding with a decline of middle-class interest and an increase of popular interest) was accompanied by the appearance of the specialist fern nurserymen.

These newcomers were a mixed group. Some had well established horticultural connections; others came new to the nursery trade. All apparently shared one feature: an intense interest in, and a resolute devotion to, ferns. Few sold only ferns, yet in all cases ferns become such a major feature of their nurseries that ferns could truly be said to be a speciality. In this brief paper I have endeavoured to introduce some of these nurserymen. In many instances it would be nice to have much more information but I am confident that time will reveal a great deal more about those people whose horticultural skills did so much to foster public enthusiasm for ferns.

Samuel Appleby of Doncaster

It is doubtful if Samuel Appleby (1806-1870) was a fern specialist in the same sense as the others considered in this article but he did issue a short catalogue devoted to British ferns. He became a nurseryman early on in life and had an interest in plants that extended beyond the purely horticultural. He was elected a fellow of the Linnaen Society in 1831. Little is known of his nursery but his catalogue contained eighty-three species and varieties of British ferns. He also sold 'Stove, greenhouse and hardy exotic ferns'.

W F Askew of Grange in Borrowdale

Askew (1857-1949) had a small nursery in the Lake District. As far as I can trace he began selling ferns in the eighteen-eighties. He was a regular exhibitor at the Southport Show. In 1908 he published a small pamphlet, 'Successful Fern Culture'. He published a number of short catalogues. Askew's nursery was exclusively devoted to the cultivation of British ferns.

J Backhouse and Son of York

About one mile west of York lay the extensive nursery of James Backhouse (1825-1890). Amidst a mass of glasshouses was what was probably the finest collection of filmy ferns ever to have been seen in this country. They were such a major feature of the overall collection that many of the Backhouse advertisements carried the logo, 'Filmy ferns a speciality'. James Backhouse was introduced to horticulture by his father James Backhouse (1794-1869). His father had set up a nursery with his elder brother and thus son James was brought up surrounded by plants. In addition to being nurserymen both father and son were very competent botanists. They scoured the countryside searching for plants and were particularly successful in locating many of our rarer ferns. One biographer claimed that James (jn.) had the country's best botanical knowledge of Scotland. When James (sn.) died James (jn.) took over the nursery and the ferns began to play an increasing part in the business.

The Backhouse nursery was not simply a collection of greenhouses. Great care had been taken in the landscaping of the grounds. He built an imitation alpine glen. It had miniature lakes, waterfalls, crags and bogs. It was considered by one visitor, 'The glory of the York nurseries'. The filmy ferns had a special underground fernery constructed for them.

Like many fern specialists Backhouse issued a number of extensive catalogues which, of course, gave prominence to the filmy ferns. Many of the forty plus glasshouses were filled with filmy ferns. James Backhouse had a speciality apart from ferns – orchids. He was as well known as a cultivator of orchids as he was of ferns.

In spite of his reputation for botanical travelling he was never robust and, apart from his botanical rambles, stayed securely in York. He had an extensive private museum including a large geological collection and antiquarian objects from all over the world.

W and J Birkenhead of Sale, Cheshire

The Birkenhead brothers are the least known of the major fern nurserymen. Their names do not appear in Desmond's monumental directory of botanists and horticulturalists (Desmond 1977) yet they were probably the largest and most specialist of nineteenth century fern nurseries.

The brothers, William (1841-1924) and John (1847-1925), came late and, apparently, suddenly to the nursery trade. William had arrived back in England after having found religion instead of gold in North America where he had, in the early eighteen-sixties, gone to find his fortune. Together with his brother he established a small nursery and seedsmen's business in Sale, where his family had been resident for many years. It is impossible to say precisely when the nursery started but the first clear evidence of its establishment is an advertisement in the Gardener's Chronicle in 1870. They were offering 'gold and silver ferns'. In 1875 another advertisement reveals that they had begun to issue catalogues. The Birkenheads issued two types of fern catalogues: small lists and large, descriptive, illustrated catalogues.

The fern trade grew steadily and by 1892 they were able to issue catalogue No. 22 containing, they claimed, over two thousand species and varieties of ferns and selaginellas.

As might be expected the Birkenhead brothers exhibited regularly at horticultural shows across the country. They were rewarded by countless medals and cups. Such success brought fame, and many horticultural journalists visited Sale and wrote about the nursery. In 1892 John Birkenhead wrote and published 'Ferns and Fern Culture'. The book received good reviews and a second edition appeared in 1897. A third, revised, edition appeared in 1911 but that was not produced by the Birkenheads.

Business seemed to be booming. In Summer 1907 a small list was issued. On September 21 a notice appeared in the Gardener's Chronicle announcing that the stock had been purchased by H B May. It is not clear why this apparently successful business should have ceased so suddenly. Certainly popular interest in ferns was declining in the new century. William, having just married for the third time, was nursing an invalid wife and by now both brothers were in their sixties. Perhaps they simply decided enough was enough. Having sold out they faded quickly into obscurity. John continued for some years as a seedsman and ironmonger but William, apart from a brief dalliance with gardening, seems to have retired quietly.

Birkenhead's Shop/Nursery at Sale

Edmund Gill of Lynton, North Devon
Virtually nothing is known about Gill except that he issued a catalogue of 'One thousand species and varieties of British and exotic ferns, lycopodiums etc.'. Inside the catalogue it says, 'Edmund Gill devotes the whole of his attention to the cultivation of ferns'. If so, then he was probably the first nursery to be exclusively devoted to the culture of ferns. The nursery was established in 1868.

James Hill and Sons of Lower Edmonton
At the turn of the century this company (telegraphic address: 'Alsophila, London') issued a thirty-two page, photographically illustrated catalogue of ferns. Many of the photographs show the nursery or their prize-winning show displays. One of the photographs shows a site with about forty glasshouses. Unfortunately, nothing else seems to be known about the company at the moment.

Robert Kennedy of Covent Garden
The British Pteridological Society has recently reprinted an 1854 fern catalogue issued by Kennedy. This makes it one of the earliest catalogues exclusively devoted to ferns. Again nothing seems to be known about Kennedy himself or his nursery. He did contribute ferns to E J Lowe when Lowe was writing his 'Ferns: British and Exotic'.

H B May of Upper Edmonton
'My ambition was to have the most complete trade collection of this or any other country. I do not think anyone will say that I have failed.' Thus wrote Henry Benjamin May about his fern nursery.

May's introduction to ferns was somewhat accidental. As a young man he had started work in the nurseries of Hayes of Edmonton. After a few years working for nurserymen around the country he spent a spell on loan to the Botanic Gardens, Edgbaston, where he was exposed to their collection of ferns. By his own admission in his own nursery, which he began in 1870, his first acquaintance was with stray 'seedlings' which appeared under the stages. He was at first unable to devote time to growing ferns, which by then had become a hobby, but he recounts how circumstances impelled a professional change to ferns. A dense smog, lasting for eleven days, had wreaked total havoc on his general stock. 'A change of programme was inevitable and ferns suggested themselves. First a few market varieties and then to these I gradually added others less well known.'

Although he sold ferns during the last thirty years of the nineteenth century it is probably in the first part of the twentieth century that he achieved complete emminence. After buying out the Birkenhead nursery he had, without any doubt, the largest professional collection of ferns in the country. There was little competition, the major rival being Hills of nearby Lower Edmonton. May's contribution to generating public interest in ferns was a valiant one. On the whole apathy greeted his considerable public displays. While the judges and journalists were full of praise the public remained unmoved and ferns continued their decline as plants of garden interest.

May was closely associated with the Royal Horticultural Society, serving on many of its committees. He knew virtually everyone connected with horticulture including Charles Druery, first editor of the 'British Fern Gazette', whom May described as 'The most versatile genius I have ever known.'

May issued large catalogues, rather on the model of the Birkenhead catalogues but including photographs. He had John Birkenhead's book on fern culture revised and republished. Despite his interest in ferns he never managed to join the British Pteridological Society. He also appears to have neglected to acknowledge his debt to the Birkenhead brothers; they get no mention in his autobiography.

Robert Sim of Foot's Cray, Kent

Little is known about Robert Sim (1791-1878) but he has left, as a legacy, an interesting fern catalogue containing nearly a thousand species and varieties. He established his nursery at Foot's Cray in 1830 after many years as a nursery assistant. One obituary claims that his success with ferns was mainly due to his son.

A Stansfield and Sons of Todmorden, Pontefract and Sale

This section really covers four nurseries and three generations of fern nurserymen. The founder of this dynasty was Abraham Stansfield (1802-1880). Abraham was one of those special creations of Victorian England; the ordinary working man who, by hard work, rose to a position of prominence in his local community. He was born the last child in a family whose parents were very poor handloom weavers. Abraham started his life as a handloom weaver but at the age of eighteen he married and petitioned for, and obtained, a post as a gardener. He evidently learnt his new trade well for in 1846 he was able to set up on his own as a nurseryman. By 1852 he was issuing catalogues which early on revealed his passion for ferns. In ten years the number of species and varieties of ferns noted in his catalogues rose from one hundred to nearly eleven hundred.

Abraham took his sons into the business but only two showed any aptitude as nurserymen. During the eighteen-seventies a branch nursery was established at Pontefract and his son Thomas (c1826-1879) was sent to run it.

Abraham's interests were not confined to horticulture. As a youth he carried out many scientific experiments and throughout his life he was known as a man who would lecture anyone on anything. He was a competent botanist and in 1852, in conjunction with John Nowell (another noted son of Todmorden), he founded the Todmorden Botanical Society and remained its President until his death.

At some point in the eighteen-seventies Abraham's youngest son, perversely also called Abraham (and henceforth Abraham Jn.), settled in Kersal Moor, Manchester. Abraham Jn. (c1838-1919) established a nursery and for some years attempted to obtain a living. Unfortunately business was not his forte and it was as a writer of prose, poems and criticism that he achieved some success. The success was rather short lived and he is today consigned to oblivion.

The other son, Thomas, died in Pontefract. He had two sons, Frederick and Herbert. Frederick (1854-1937) went to Manchester to train as a doctor. He bought land in Sale and, appropriately for one brought up surrounded by ferns, started a fern nursery. Once medically qualified Frederick moved away from Manchester eventually settling in Reading. Herbert gave up the Pontefract nursery and moved to Sale to take over the nursery. Herbert (1856-1928) continued to issue catalogues up to and including the year of his death. One of these catalogues has been reproduced by the British Pteridological Society.

Although Frederick took no further part in the nursery trade he nevertheless made a distinctive contribution to fern history. He was the first President of the British Pteridological Society and subsequently acted both as Secretary of the Society and as Editor of its journal, a post he held until his death. The highest award of the Society was named in honour of Dr Stansfield. The 'Stansfield' medal has only rarely been awarded and only to those whose contribution to the Society has been of the highest order.

There are certainly more nurserymen than I have identified above. Any additional list would have to include Booth of Hamburg, Buster of St Mary's Cray, Dicksons of Chester, Henderson of Edgeware Road, and St John's Wood, Perrys of Enfield, Rollinson of Tooting, Sang of Fifeshire, Shuttleworth of Peckham, Paradise Nurseries of Holloway (B S Williams), Ogilvie of Barnstable, O Kelly of County Clare and Veitch of Chelsea. Many of these would not have issued separate fern catalogues but all devoted considerable space to ferns both in their catalogues and in their nurseries. No doubt there are many more waiting to be rediscovered. If you can add to this list or supply any additional information about any of the nurseries above, do please let me know.

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May H B	Seventy Years in Horticulture, Cable Printing and Publishing Company 1928

I am keen to increase the Society's collection (both original and photostat) of fern nursery catalogues. If you know of the locations of any catalogues – please let me know. The Society is also interested in twentieth-century catalogues. If you have any that you do not want, why not donate them to the Society's archives? If you are an overseas member could you pass on to us any unwanted contemporary fern catalogues from your own country. Lastly, if you are a fern nurseryman or woman, would you like to put us on your mailing list and, if possible, let us have copies of earlier catalogues.

THE CONTROL OF PESTS OF FERNS

A R Busby

This brief article is in response to recently received correspondence concerning various problems members have experienced with their fern growing. It is an attempt to present a list of pests of ferns I have encountered and their control.

It is well known that ferns are particularly susceptible to insecticides, especially the systemic kinds. Mercifully, hardy ferns in the garden appear to have few enemies; however, the products listed below have been used to control pests on both indoor and hardy ferns in my collection. Susceptibility to insecticides can result in the death of a fern; fortunately, I have found that more commonly there is a sudden loss of fronds but the fern recovers after a prolonged period of sickly inactivity.

It must be stated that I have not tried all the insecticide products available to the gardener, and that there are other members in charge of important fern collections with wider experience. Perhaps this article will prompt them to add their experiences in future editions of this journal. There are one or two rules to bear in mind concerning the application of insecticides; firstly, always read the instructions however well acquainted you become with a particular product; secondly, try to choose a cloudy, still day for spraying and avoid breathing in the spray or contaminating your skin. Wash your hands afterwards.

Remember to persist with the spraying at the recommended intervals. There will be live young and eggs at all stages so you will not wipe them out with just one or two applications. Total eradication is not always possible and the object of the exercise is to effect control.

Two of the most persistent and difficult pests on ferns are Brown or Soft Scale which appear as small, oval brown or green-grey blisters on fronds and Mealy Bug which appear as white, meal-covered crawling insects. Heavy infestations of Mealy Bug appear as white, cottony down, mainly on the undersides of fronds. Should you have a bad infestation of Mealy Bug, tap out the root ball from the pot and closely examine the soil for further infestation. I have found that a regular spraying programme with Bio Flydown effects control of both these pests without any apparent harm to ferns. This includes *Adiantums*. Bio Flydown also controls Greenfly, Whitefly and Red Spider. Whitefly is not a common pest of my ferns and as Red Spider thrives in hot dry atmospheres, the usually cool moist atmosphere of a fern house, prevents Red Spider from becoming a serious pest of ferns.

There are times, particularly during the late spring—early summer, when isolated attacks of Greenfly, or more usually, Blackfly (Aphids), will be found on the soft growth of new fronds. Sometimes, only one or two plants in a collection are affected. A quick and easy solution to this problem will be found in the Pyrethrum based aerosol applications such as the Plant Pest Killer by Synchemicals Ltd. One or two short bursts about 18 inches from the plant will quickly and safely remove the pests without harming the fern. This is particularly useful on *Adiantums*.

Slugs and snails are a frequent problem on ferns. (Have you noticed how they relish *Aspleniums*?) I have used a number of different pellet and dry bait poisons with only moderate success. Murphy Sluggit Liquid, applied from a watering can at regular periods, provides complete control with no harm to the ferns.

Adult Weevils occasionally make their appearance, but fortunately, usually only one or two at a time and they are easily dispatched with the foot. Although they are large, their dark colouration makes them difficult to spot. The adults are wingless about 1cm long and although they are usually to be found during the summer months, they do make an appearance at almost any time of the year under glass. They lay their eggs in the soil and the destructive fat, whitish grubs eat the ferns' roots. I have managed to control them without resorting to chemicals by simply tapping out the root-ball and examining it for grubs and damaged roots, especially when repotting. If a fern wilts for no apparent reason suspect weevil or crane-fly grubs. Watering with Bio Flydown is recommended by PBI Ltd. for control of soil grubs, but I have not tried it as a soil wash.

Turning to soil borne pests, Sciarid Fly, small black flies and their larvae can be a nuisance, especially if the soil is kept wet and contains a lot of humus. Such infestations often occur on spore sowings and while no real harm appears to be done, such pests are to be discouraged. Fisons Combat Soil Insecticide granules containing Diazinon has proved very effective against these and other soil pests. I have used it on pots of prothalli without any apparent harm. It has been stated (Bunt 1976 and Hoshizaki 1975) that Diazinon damages *Adiantums*. However, I have not found this so using the granules on soil pests.

I have only mentioned the pests I have experienced on ferns and there are sure to be fellow fern growers with other problems not mentioned. All the insecticides I have mentioned have proved safe on ferns with regular application over the last two years or more. It is prudent to be cautious and sparing with the application of any insecticides on your ferns.

References:

Bunt 1976, Modern Potting Composts by A C Bunt, Pub. by George Allen & Unwin

Hoshizaki 1975, Fern Growers Manual by B J Hoshizaki, pub. by KNOPH New York

Products:

Bio Flydown made by PBI Ltd., Britannica House, Waltham Cross, Herts.

Plant Pest Killer made by Synchemicals Ltd., London

Murphy Sluggit Liquid made by The Murphy Chemical Co. Ltd., Wheathampstead, St Albans, Herts.

Fisons Combat Soil Insecticide made by Fisons Garden Products, Hauxton, Cambs.

ON THE TRACK OF OLD VARIETIES

Martin Rickard

For some time I have been fascinated with the possibility of discovering any of the old apparently "extinct" varieties from the past. To this end I have checked through past membership lists of the Society to try and locate gardens of former members where hopefully some gem may still linger.

One promising lead was the village of Bisley, near Stroud in Gloucestershire, where three members of the Society had lived. That was not all, one of them was the Canon E J Hawkins, a member from 1910-1938, a frequent contributor to the British Fern Gazette and, above all, an accredited owner of *Polystichum setiferum* 'Plumoso-divisilobum Baldwinii', or more probably an offset of it (See BFG Vol 3, p 226. 1917). So one day, given the opportunity, I set off to the delightful village of Bisley with no precise idea of where the Canon had lived. This was where I had a stroke of good fortune because the proprietor of the village Post Office had, as a boy, been in the guard of honour for the Canon's funeral (at about the beginning of World War II). Of course he knew where he had lived and directed me there. The present owner of the house was very friendly and helpful but my trail went cold when I found only one fern in the garden — and that was a normal *Dryopteris filix-mas*!

Still there were two strings left to my bow; the first of these very soon proved to be of no value as the house where J Nation (Plumber) (a member from 1912-1914) had lived, in fact, had no garden.

The last member was one R J Dyson (a member from 1931-1938) of Overcourt, which turned out to be almost next door to Canon Hawkin's house. This sounded promising, especially as the Canon and Dyson were contemporaries with, I believe, Dyson outliving the Canon. It seemed reasonable to assume that they were friends and that the Canon would have left his friend what ferns he had. With these thoughts in my mind I walked along to Overcourt, which turned out to be a most imposing property in a large garden. Along the drive I saw some ferns including *Polystichum aculeatum*, *P. setiferum* and *Dryopteris filix-mas* but by the side of the front door were several varieties – this was getting too good to be true! Unfortunately they had been sheared back for the sake of tidiness but they were unmistakably forms of *P.s* 'Divisilobum'. After I had found the housekeeper I was shown around the back of the house and there it was – *P.s* 'Plumoso-divisilobum Baldwinii' or as near as makes no difference! I couldn't believe it! I was allowed to collect a frond of this and a few other varieties which I sent off to Jimmy Dyce hoping he would agree with my identification. I didn't have to wait long – the next day the 'phone rang with an enthusiastic Jimmy at the other end agreeing that this was probably the long lost 'Baldwinii'! We could not put a name to the small number of other varieties in the garden but one or two of the *P.s* 'Divisilobums' were very fine plants indeed.

This first visit was last winter and I have since returned to Overcourt, when the present owner very kindly allowed me to split one plant of 'Baldwinii' and take a crown for my garden. Three more plants now thrive in the garden and the owner knows of one more with a friend locally. For anyone who is interested in seeing these fine plants for themselves, I should add that the garden of Overcourt is open to the public once a year under the National Gardens' Scheme.

The above account was a case of following a hopeful line of enquiry but sometimes good things turn up in the most unexpected places. While preparing the ground for a BPS meeting in Devon in 1981 I called at an out-of-the-way farmhouse to ask permission to explore the nearby woods. Permission was duly granted and in conversation I admired plants of *Matteuccia struthiopteris* in the front garden. The owner then commented that she had something much rarer at the back of the house and led me round to see it. It turned out to be a magnificent plant of *Polystichum setiferum* 'Plumoso-divisilobum' very strongly resembling 'Deltoideum' (see frontispiece of the *British Fern Gazette* Vol 5, No 12, 1929). It was an old plant and I was offered a crown if I cared to come back in the autumn. Of course I was delighted to accept this generous offer and I was pleased when the lady accepted a plant of *P.s* 'Plumoso-densum' in part exchange – I say part exchange because I could not offer anything which equalled the magnificence of the 'Deltoideum'.

Some treasures can turn up nearer home. In last year's *Bulletin* I asked for information which might lead to the rediscovery of a number of "extinct" polypodies. Since writing that note I have discovered among my existing collection a very strong candidate for the variety *P.v.* agg 'Cambricum Prestonii'. I'm not sure yet, but given a chance to settle down, this plant may develop sufficiently to allow certain identification.

If any other members have had similar good fortune with their fern hunting, I would very much like to hear about it with a view to giving details in future *Bulletins*.

A BEST DOZEN FERN VARIETIES FOR THE GARDEN

J W Dyce

We are often asked by new members to suggest good fern varieties for their gardens. Such plants should be good doers, strong-growing and with looks guaranteed to ensure that their new owners are "sold" on ferns for life! I have selected a dozen to start off a good collection, but, no doubt, some members will not agree with my choice. Fair enough! I could pick fifty or more, all well qualified and desirable for inclusion in such a restricted list. It must all remain a question of personal choice and those I have chosen are not too fussy in their requirements, and should not disappoint the new recruit. I have selected three lady ferns, three polystichums, three scolopendriums, one male fern, one polypody and the royal fern.

Athyrium filix-femina 'Percristatum'. This is really a section with several very good plants to choose from. All of them are fully crested, at the frond apex, at the pinnae tips and with minute cresting at the pinnule tips. This is what *percristatum* means — fully crested in all the parts. In the more fully developed ones even the pinnules are divided and the final segments also have bristly tips, suggesting cresting. There are several named plants, most of them exceedingly difficult to get hold of, but many more equally good which are unnamed, for, given suitable spores, with this species' normally generous production of good varieties, it is possible to obtain excellent *percristatums* comparatively easily. Get one good specimen from a friend or nursery and from its spores you have the promise of many good things, not just *percristatums* and *plumosums*, but the lot! These plants are good growers, up to two and even three feet high. They do not like dry conditions nor too much light — in nature we find the species looking its best in damp woodlands and in ditches where there is plenty of moisture for its roots and humidity for its fronds.

A. f. 'Plumosum'. This is again a section, comprising many varieties, all large-growing and feathery. The pinnae resemble small fronds with long and wide pinnules which are again divided twice. They may also be fully crested. To keep these tall and strong-growing plants which can reach up to 3 feet, in good condition, light shade is necessary to protect the rather delicate fronds. All my remarks on 'Percristatum' apply equally here.

A. f. 'Victoriae'. A wild find of about 100 years ago, this variety is unique and no one has ever found it a second time. I doubt if the original still exists but fortunately its progeny come "true" from spores and many good plants are easily obtainable. The pinnae divide into two at the junction with the rachis or main stem and the halves which are narrow and tapering with neat crests at their tips, grow out at about right angles to each other so that the fronds present a series of crosses up each side of the rachis. In addition, the upper halves have a downward slant and the lower ones an upward slant, giving a 3-D effect to the fronds which, when looked at along the main stem at eye level present another series of crosses ranged behind each other. Most plants tend to be rather spreading in habit, up to about 18 to 24 inches, unlike the original which grew upright to about 3 feet. Some specimens are very much better than others and a good plant can be a distinct asset in the fern border. They like "ladyfern conditions" as stated above, but they are not so delicate and can stand much more sun, although preferring light shade.

Polystichum setiferum 'Divisilobum'. Again this is a section with many named plants but many more unnamed ones which are equally good. They are comparatively easy to obtain by sowing the spores of any good *divisilobum*. This is a very handsome fern for the garden, growing well in full sun, but the finer ones should have light shade to protect the fronds from sun-scorch. In this section the normally plain pinnules with the projecting "thumb", looking rather like mittens, are greatly enlarged and divided up to two times into very narrow segments. Some are tall upright plants with the pinnules and segments well spaced, giving a delicate airy grace to the fronds, others look rather like star-fish with horizontal rather heavy congested fronds all curving in the same direction. Many of them develop bulbils up the main stem, and these can be grown on to increase stock either by pegging the fronds to the ground while still attached to the plant or by removing them and pegging them down in large seed-pans.

P. setiferum 'Divisilobum Iveryanum'. This *divisilobum* has long narrow fronds with shortish pinnae very heavily crested. It grows to about 18 inches, is spreading in habit, and is a most handsome variety. A prolific bulbil producer, it is strong-growing and does not object to a sunny position, although as with most ferns, it will "wear" better given some shade.

P. setiferum 'Plumosum Bevis' (earlier name 'Pulcherrimum Bevis'). Until recently this variety was thought to belong to the species *P. aculeatum* and most references to it will still be found under that name. This is another unique wild find, never repeated, from the West Country over 100 years ago. Unlike *A. f. 'Victoriae'* the original clone is still with us, as strong-growing as ever, divided and re-divided, and scattered world-wide wherever British fern varieties are grown. It has dark green glossy fronds, rather hard in texture, which explains why it was considered to be an *aculeatum* in the days before chromosome counting. The long silky and divided pinnules are sickle-shaped, causing them to overlap and give a plaited appearance to the pinnae. At the frond apex the pinnae behave in the same way, giving a similar plaited look to the top part of the frond. This variety is a very strong grower, tall and upright, reaching 3 feet, and more in congenial conditions. It is generous with its offsets which explains why it has spread far and wide in the original clone, but is almost completely sterile except on very rare occasions when one or more minute spore-heaps can be found by diligent searching on well-grown plants. It is one of the great ferns in any collection, giving its best in both sun and shade.

Asplenium scolopendrium (Phyllitis scolopendrium, Scolopendrium vulgare) 'Crispum'. I give the older names in brackets as this fern can still be found listed under them. In this variety the long strap-shaped fronds of the species are deeply and closely crimped like the Elizabethan neck ruffs. Again a section, some are narrow, less than 2 inches wide, others are very wide up to 4 inches and more like 'Crispum Bolton's Nobile' which is one of the best but probably not very easily obtainable from the trade. Unnamed ones, some good,some not so good, can be obtained from some nurseries retailing ferns but they tend to be expensive. They are good doers, up to 12-15 inches, rather spreading in habit, and happy in most fern borders under a wide range of conditions.

A. scolopendrium 'Laceratum'. In this variety which grows to about 12 inches the fronds are very wide and deeply cut into narrow irregular segments. The best-known one is 'Kaye's Laceratum' and it is widely distributed, not only in this country, but in the U.S.A. where I found, when over there recently, that most growers possess it. It is a strong grower and does best in shady conditions. It is an excellent fern for an old wall crevice from which the fronds can grow out happily.

A. scolopendrium 'Ramosum'. Once again a section, a large one containing many most beautiful plants which are added to quite frequently by excellent wild finds. It grows from 9 to 12 inches forming bushy plants with the fronds divided from the base several times and with the apices also divided into crests which can be very large and congested. They are eye-catching ferns for the front of the border and can stand sun when many tend to develop a distinctive yellow colour which adds to their attraction.

Dryopteris pseudomas (now named *D. affinis*) 'The King'. Finest of all the varieties of this species and very fittingly named, this fern has tall very rigid upright fronds over 3 feet in height and fully crested at the apices. The pinnae are very neat and regular and taper towards the tips. These are beautifully adorned with very graceful crests which are just the right size to create in the whole a most harmonious and well-balanced picture. 'The King' is a very good doer and makes a handsome shapely shuttlecock when restricted to one crown. It stands sun well and is very happy in the open border.

Polypodium vulgare 'Cornubiense'. The polypodies have given us a large selection of varieties, and this one is very popular with growers and very easy to grow. The normal plain entire pinnae of the species are in this variety greatly elongated and widened and are divided up to three times. This fern can be confused with a very similar looking one called 'Pulcherrimum' which is equally easy to grow, but 'Cornubiense' can always be distinguished by what I term its "signature tune", the habit of throwing up at times the odd normal-shaped frond of the species, either entire or partially normal and partially divided. However, the charm of the variety is such that this "naughty" habit is easily forgiven. Some growers remove such fronds whenever they appear. There is a suggestion that their removal helps the plant to overcome the tendency to produce them but I doubt if there is any foundation for this belief. This is a very beautiful strong-growing fern with a creeping rhizome which spreads to form clumps with 9 to 12 inch fronds. It does well in an open well-drained border or on the top of drystone walls.

Osmunda regalis. If a suitable position is available for it no fern garden is complete without a specimen of the Royal Fern which is indeed royal with its superb tall-growing fronds, up to and at times exceeding 6 feet. The pinnae are long with plain pinnules elongated oval in shape. There are a few varieties, the best-known being 'Cristatum' with crested pinnules and 'Crispum' with crisped ones; they are not so tall-growing as the species. This fern likes to be beside water, ideally growing in light shade on the banks of a stream or pond so that its crown is well above the water-level while its roots can penetrate down to the water below.

ACUTILOBUM VERSUS DIVISILOBUM

J W Dyce

I am often asked to explain the differences between the acutilobe and divisilobe sections of variation in *Polystichum setiferum.* I am not surprised about this as there has been a very involved intermingling of the two kinds of variation since the very early days of fern variety collecting, and this has also included the multilobes and the plumose forms of both the multilobes and divisilobes.

I shall try to describe each kind as clearly as possible, and we begin with *Acutilobum.* This is a very simple variation but very much one of the "blue-blooded" elite in Soft Shield-fern variation. The pinnules are very narrowly triangular, running out to sharp points and, except for the basal lobe, are not divided in any way – some of the varieties, however, may have finely pointed serrations. The basal lobe, rather like the thumb of a mitten in the normal form, has a similar narrow shape but is smaller and juts out at a wide angle to the pinnule axis. The texture of the whole frond is hard and it is glossy in appearance. Many, of course, are not so clean cut and distinctive, but as long as the pinnules are entire, hard in texture and glossy, they can be regarded as *Acutilobum.* There are very few really good ones around.

In *Divisilobum* there is the same hard texture, and the glossiness can also be there but is sometimes duller. The pinnules are much enlarged, longer and wider, and can be divided up to two more times, so that in some of them the pinnules resemble small pinnae. The final divisions are very narrow, usually cleanly cut, and also well-spaced out on their respective pinnule or pinnulet midribs. In none of them do the final divisions resemble the normal pinnule of the species.

At one time many of these divided pinnule plants were included in *Acutilobum*. I can only think that the reason was to divide up the two sections more evenly – where there are only a few real acutilobes there has always been a very large number of divisilobes. So a decision was made – if a plant had its divided pinnules the same length on both upper and lower sides of the pinnae it was an *Acutilobum,* if the lower pinnules were longer than the upper it was a *Divisilobum.* BUT – what about the marginal plants where it would be very difficult to decide *which* were the longer, and what about the habitat and the changing growing conditions year by year which could influence pinnule growth one way or the other?! Some plants could be acutilobes one year and divisilobes the next!

It is time to change all this – plants with *undivided* pinnules as described here are in the *Acutilobum* section, and ALL plants with divided pinnules, provided they conform to the requirements of the section, are in the *Divisilobum* section. In *Plumoso-divisilobum* the pinnule division is carried a further one or more times, with overlapping of the greatly enlarged pinnae. But because of the narrowness of the final segments and their wide spacing, the plants still remain very open and do not look congested.

Further complications now arise in the shape of the multilobe varieties. *Multilobum* itself can be easily separated from *Divisilobum* – although the pinnules are divided one or more times, the ultimate segments still preserve the normal pinnule shape and the soft texture of the species. But when we come to the *Plumoso-multilobum* plants we are in real trouble! These, again with the soft texture and normally shaped final segments, become so divided that the fronds, usually very large and triangular in shape, become slabs of mossy-looking greenery; they divide and overlap in such a congested way that the fronds can build up to a solid thickness of over an inch.

Such plants are very different from the clean, open, hard texture and semi-glossiness of the true *Plumoso-divisilobum* ones, but unfortunately they were all lumped together in the same section, *Plumoso-divisilobum,* by the early naming authorities, and all the plumoso-multilobes are called 'Plumoso-divisilobum'.

Can we separate them? I leave it to the purists among our future growers to decide this. In the meantime I am content to have done the job of dividing *Acutilobum* from *Divisilobum.*

ISOETES HYSTRIX IN CORNWALL

A C Jermy

In 1980 local naturalists, conservationists and scientists interested in the unique habitats and species to be found on the Lizard Peninsula, Cornwall, launched an Appeal for funds to carry out surveys and fieldwork to assess the biological status of the area before changes in land-use and development ruin its scientific value. So far the Appeal has raised £13,000, and the Manpower Service Commission have funded three workers with the Project, thus giving a further £15,000. A series of Reports have been published but the latest (No. 4, September 1982) is a study of the detailed distribution and ecology of *Isoetes hystrix.* The authors estimate that over 100,000 plants must exist in the area but maintain the species should still be considered vulnerable in the conservation sense. On a world basis the species ranges from the south-eastern Black Sea area, along the Mediterranean, to the Atlantic coast, and north to Brittany and the Channel Isles and W. Cornwall. In spite of the Lusitanican element in the Irish Flora *Isoetes hystrix* does not grow there.

HARDY DWARF FERNS

Martin Rickard

Hardy dwarf ferns are a definite asset in the garden. They are very desirable in rockwork or at the front of the border, while in the small garden they are frequently the only type of fern which can be considered seriously.

Unfortunately many ferns acquired as 'dwarfs' often tend to become normal in size after a year or two. Therefore for the benefit of newer members, I've compiled the following list of species and varieties which should, hopefully, *stay* reasonably dwarf.

Asplenium trichomanes and varieties 'Incisum Moule', 'Cristatum' and 'Ramosum'. All are readily available and very pretty. 4 – 6 inches.

A. septentrionale, a curiosity worth trying to obtain although difficult to establish – no lime. Do not collect from the wild. 2 – 4 inches.

A.x alternifolium, very rare but easy to grow, fairly easy to split. Again do not collect from the wild. 2 – 4 inches.

A. viride, I find this difficult to establish, but apparently easy on limestone. 4 – 6 inches.

A. ruta-muraria, common, but difficult to establish. 3 inches.

A. dareoides, a South American species deservedly becoming more common in cultivation, creeps slowly, very pretty. 6 inches.

A. ceterach, dry sunny spots, a common wild species in the South West. 6 inches.

A. fontanum, European species, uncommon in cultivation but well worth growing. 8 inches.

A. x ebenoides, rare North American hybrid species, a curiosity. 6 inches.

A. adiantum-nigrum, common, can get a bit big in some situations. 9 – 12 inches.

A. hybridum, rare European hybrid species, needs good drainage, another curiosity. 6 inches.

A. scolopendrium 'Alto', densely crested dwarf ramose form, available from Fibrex Nurseries. 6 – 9 inches.

A. s. 'Brachiato-crispum', many good forms, most very good. 9 – 12 inches.

Adiantum jordanii, rare, but apparently hardy, not unlike *A.capillus-veneris* in appearance. 9 inches.

Ap .edatum 'Subpumilum', often called var. 'Aleuticum', very easy, very pretty, very common – very desirable! 6 – 9 inches.

Athyrium filix-femina 'Frizelliae Nanum', delightful 6 inch form, if not available other forms slightly taller are worth trying.

A. f. 'Congestum', several congested forms rarely exceed 12 inches at maturity.

Blechnum penna-marina 'Cristatum', I would recommend this form as the non-crested types can be a little aggressive. 3 – 6 inches.

Camptosorus rhizophyllus, difficult to establish but good for limestone rockwork. Tasty to slugs! 6 inches.

Cheilanthes spp., most hardy species are worth trying, they are unlikely to become too big, many prefer well drained spots on acid soils – they do not like cold damp springs. 6 – 12 inches.

Cystopteris fragilis, common, gives early season foliage but tends to go off in late summer, likes lime. 8 inches.

C. dickeana, a rare native species, a congested form of the above. 6 inches.

C. regia, a continental species, a disected form of *C. fragilis,* very pretty but again inclined to go off in late summer. 9 inches.

C. montana, very rare, occasionally in cultivation, a creeping form unlikely to become troublesome! 6 inches.

C. sudetica, even rarer than the above, not dissimilar. 6 inches.

Dryopteris fragrans, very rare, an arctic species which forms an attractive tuft. 6 – 8 inches.

D. affinis 'Crispa Congesta', a tiny gem, Reg Kaye has stocks of this. 6 inches.

D. a. 'Cristata Congesta', another rare gem. 6 inches.

Pellaea atropurpurea, a North American species, likes dryish calcareous niches. 8 inches. Other hardy species of *Pellaea* would be worth acquiring as available, most are dwarf or semi-dwarf.

Polypodium vulgare agg. 'Trichomanoides', a delicate quadripinnate form rarely exceeding 8 inches. Very rare, but very desirable.

P. v. agg. 'Trionomanoides Jean Taylor', in true character this is a crested form of the above but it is rather inclined to revert to a coarser form. Even this form is worth getting. 8 inches.

P. hesperium, dwarf American species. Extremely slow growing but not particularly attractive, not unlike small *P. vulgare.*

Polystichium setiferum 'Congestum', handsome plant, not uncommon. 9 inches.

P. s. 'Congestum Cristatum', not as handsome as above, easy from spores. 9 inches.

Woodsia alpina, a rare gem. Never a species to catch the eye but one to admire under close scrutiny. Not to be collected in the wild. 4 inches.

W. glabella, as above but much rarer!

W. scopulina and *W. oregana,* more common in cultivation but less attractive. Both are North American species. 6 – 9 inches. Some other species of Woodsia are not dwarf, e.g. *W. plummerae* and *W. obtusa* which can become gangling plants up to 15 inches. *W. ilvensis* is dwarf but very rare and less attractive than some of the others.

There are doubtless many other species and varieties which could have been included in this list but the above should be enough for a start. Many are readily available but some will require a lot of finding – good hunting!!

A BRIEF ENCOUNTER WITH THE FERNS OF CORFU

R P H Lamb

As a newly fledged member of the British Pteridological Society, I thought I had better do my duty during our "Get away from it all, week in the sun" holiday in Corfu this May. And week in the sun it turned out to be, with temperatures soaring under virtually cloudless skies, hardly the place for a profusion of Pteridophyte growth despite the proximity to the Mediterranean.

Our first glimpse of the fern population of Corfu came soon: several *Asplenium ceterach* growing in a dry stone wall made of limestone not far from our villa, subsequently discovered to be the dominant species in the part of the island we managed to visit. I even spotted a fine crenatum, and there were some magnificent specimens where the walls were shaded, together with a fair proportion of apparently dead ones, shrivelled and dried up. Also I found many growing "naturally" on large boulders, something I've yet to see in this country.

Thus encouraged, we searched wider afield on our various forays into the surrounding country both along the coast and into the interior, climbing high amongst the olive groves with a marvellous profusion of wild flowers by the road side, a veritable botanist's paradise.

Bracken, that widespread colonizer of waste land, was hardly in evidence, and all we saw were a few admittedly luxurious stands in the fields not far from the sea. It appeared that unless we were very lucky, most ferns would prove to be wall-growing calciphiles.

One anomaly was the use of *Nephrolepis exaltata* as an ornamental pot plant seen in a few gardens. It would be interesting to speculate on the exact origin of this particular tropical species.

To the south of our villa was a curious promontory; clothed in deciduous trees with exotic Eucalypts, and equipped with numerous (incongruous) Robinson Crusoe straw huts, it formed part of an enormous "youth club" for international youth. Not far from a woodland bar, two ferns growing in classic habitats were discovered. The first, *Polypodium australe,* was growing epiphytically on tree trunks and moss-covered rocks. The pinnae were serrated and the lower two inflexed. With it on one group of rocks was a solitary *Asplenium adiantum-nigrum.* (This was almost certainly *A. onopteris,* Ed.)

Our greatest surprise came on an expedition into the hills to sample the delights of a higher viewpoint and the wayside bars and cafes. We met a fellow naturalist in the guise of a farmer from Suffolk, and had a most enjoyable time talking and looking. Peering into a cavity by the road (a drinking place for animals?) revealed a pool of water above which, growing from the rock, was a magnificent Adiantum *(probably A. capillus-veneris, Ed.)* obviously revelling in the cool moist atmosphere into which percolated the sun's rays from time to time. Pendulous fronds with large bright green pinnae, this plant was certainly in its element and extremely handsome.

Reverting to the dry-stone walls, the final two ferns were "run to ground". First, a beautiful little fern found with the rusty back, but in the more shady positions. A frond was collected and later drawn; blade ovate in outline with 13 pairs of opposite pinnae; the frond less than 6", the wiry purple-brown stalk covered in light brown hairs about half the total length; the rachis becoming green towards its extremity; pinnules, 5 pairs on median pinna, sub-opposite, with opposite medium green pinnulets, i.e. tripinnate; the edges of the pinnulets rolled over the dark brown sori around the perifery. The frond carefully returned home, was identified by Nigel Hall, whom I discovered lives only some 3 miles from our then house in Stockport. Perusing his magnificent library, it transpired the species was *Cheilanthes fragrans,* indigenous to Greece, and a real charmer. Hopefully some of the spores will germinate. On a subsequent visit to the Coughlins' superb garden in Bromsgrove, Lt.-Col. Philip Coke, quite by coincidence, gave me a sporeling of *C. fragrans* and which is now recognisable and doing well.

The last, although doubtless there may be others on Corfu unless it's entirely composed of limestone, was another Asplenium, not identified so far. Growing in solitary locations in walls, apparently able to cope with more sunshine that the other wall ferns, but far from common, it resembled an upright version of *A. ruta-muraria* having fewer fronds and of a lighter green. *(Looks like Gymnogramma leptophylla, Ed.)*

Altogether a very necessary break from our work, rewarded with the find of a few new – to me – ferns, and the chance of sporelings which, presumably, will not prove hardy enough to grow outdoors, although other readers may have different experiences.

(The identifications given in brackets are from colour slides provided with this article, which, unfortunately, could not be reproduced. Ed.)

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TRYING OUT FOREIGN FERNS

Richard Rush

In previous issues of the *Bulletin* (1979, 1981) I've indicated my interest in the field of hardy foreign ferns. I'm certain that we presently know only a small fraction of the potential total and that among the "new" hardy ferns awaiting discovery by gardeners there will be some outstanding plants. I've been keen to try out as many as I can. To that end I have, over the past few years, made an increasingly large number of spore sowings of foreign species, a rising percentage of which are, so far as I know, previously untried. In addition there are interesting species successfully tried by correspondents in Northern Europe and analagous regions in North America which I should like to confirm as hardy here. I strive for a balance of low risk (almost bound to succeed) to relatively higher risk species. It seems to me that once addicted to fern raising and growing, a measure of experiment adds extra interest to the hobby. While the main reward is to become acquainted at first hand with splendid plants which you might otherwise never see, I find that I now, for the first time, extend a welcome, albeit of an equivocal kind, to winter, in anticipation of totting up the survivors in Spring and early Summer.

1981 was the year in which I started seeing real results from my foreign fern spore cultures – it's generally a slow business. This, in turn, put me in a position to obtain additional species through plant swapping, and I was given several more. 1981 was also our first full year in a new and fairly neglected garden, during which I needed to get everything I could into the ground, sometimes planting ferns out at a recklessly early stage, in order to free myself to set about getting organised in the garden.

The Winter which followed proved to be of exceptional severity; so much so that the surviving ferns – many of them recently planted infants – might fairly be described as apparently hardy. So many of them being home-raised, and thus in some quantity, often meant that one or two plants of a species could be planted outside (often seemingly prematurely) while others were – nominally at least – held in reserve, providing ample evidence that it is a great deal easier to say that a fern is hardy because it survives than to say that it has not survived because it is not hardy. There were, in fact, few entire losses, though there was considerable thinning of my stocks of "spares" – particularly in my lath-house, which provides only shade and shelter and, as I realised when it was too late, deprived the ferns within of the full benefit of snow cover. The ferns within, moreover, were all in pots and were thus additionally vulnerable to the assorted dirty tricks of Winter. Some were housed under plastic propagator lids: with these I think the principal cause of losses was moulds which develop with rising temperatures. But this thinning of stocks of young ferns in pots was even-handed, not particularly discriminating between native and foreign.

A further point to be made is that clearly ferns produce extravagant numbers of spores, and so many species spread by alternative, additional means, to compensate for the naturally miniscule success rate of this method of reproduction. As well as a large number of species exposed to the rigours of a severe winter as young plants, I had a considerable number of species in spore cultures in the lath-house, in my apology for a greenhouse, or on a bench outside, all of them in enclosed plastic containers and all of them thoroughly frozen.

The thin soil in my garden is light, generally neutral, rather sandy, over a thin band of gritty clay, over what seems like pure sand. If it doesn't get waterlogged in winter – a plus factor – it dries out far too rapidly the rest of the year in what is a south-facing garden, in which shade and shelter are presently insufficient. The main counter measures are, of course, humus and the hosepipe. After a lot of labouring almost all of my ferns grow on raised beds or banks, with the main path, cut as a channel, as the lowest level: apart from aesthetic considerations, convenience in weeding and watering, some conservation of humidity and the discouragement of infant feet from inadvertently wandering onto the ferns, I hoped that there might be some frost-draining effect. In summary, the conditions available to me are far from ideal and my hardiness trials are of a rough and ready, hit or miss, kind. I would prefer to try "new" ferns out only when sure that they were strong plants. Since I cannot contrive to do it in that way I think it is better to work within the limitations of the conditions. Which is to say it is better that they be spared expectations of pampering. I don't raise as many plants per sowing with this approach as when, previously, I got my spore cultures as far developed as I could indoors before taking them outside — but I lose far less plants when it comes to the first potting. Raising ferns is easy; the difficult part is keeping them to the point where they are strongly rooted.

There were losses; among flower plants, among stocks of spare ferns, and among a few species where I had but one or two plants — though among these last it was more often than not far from certain that the plants were in active growth before the onset of winter. There were three or four species being tried, of which I had but one plant of each and which were young and too well-travelled, which failed to "take" and faded away well before the first hint of winter: some in the same category planted later in the year and which failed to re-emerge in spring I think may well have likewise failed to "take". Accordingly in most of these cases I mean eventually to try again. I had ascribed the loss of *Asplenium bulbiferum* in the greenhouse to insufficient hardiness, yet not only was it a rather small, immature plant, but I also recently recalled that I had formed doubts as to whether it was *bulbiferum* or the similar *viviparum* — which could be expected to be more tender. I had considerable numbers of *Asplenium platyneuron* and *A. marinum:* in both cases a plant or two were prematurely planted out with the first certainly, with the second probably, not in ideal sites. These were such tiny plants that I was not surprised at their disappearance. Meanwhile I had good stocks of both in pots: at the time of writing (June '82) I have located two plants of *marinum,* belatedly re-emerging, while the one surviving *platyneuron* I found doesn't now look at all hopeful. My fault for not having paid due heed to the warnings about their sensitivity to overwatering in Reginald Kaye's book "Hardy Ferns": I don't think that there can be doubts as to the hardiness of *platyneuron,* while *marinum* is a native. The same cause, rather than insufficient hardiness, I now realise may have put paid to my three plants of *Lastreopsis hispida.* The flourishing clump of *Woodwardia virginica* I brought from my previous garden, and which had remained in good condition in a container — a large polythene sack with holes cut in the bottom — was one of the ferns which faded away before winter. I don't greatly regret the loss — it is, I think, a far from exciting species — but the cause of its demise mystifies me still. In this garden I have at last succeeded in growing *Onoclea sensibilis* to the point where I have to battle with it to keep it in check, while my plants of *Blechnum spicant* are now thriving as never before. I am unable to fathom in what — if any — way the site especially created for *W. virginica* was unsatisfactory.

I think it is surprising that there were few losses among the species I was trying at my first attempt — which were neither certainly hardy nor for which there was cultivation guidance on which to draw. Though we can anticipate that there will be hardy ferns as yet unfamiliar to us which we will only succeed with when we know the secret of how to grow them, which may be different to what is usual in the genera. I find no reason to be deterred from trying "new" species in the expectation that such exceptions to general rules will be frequent. Even species which are known to be rare in nature, or are of very localised distribution, need not invariably be difficult to raise from spores.

This must be only a preliminary and generalised report: there is not the space for more detail. A good many of the ferns tried are presently too far from maturity for qualitive observations to be other than premature. Even as a quantitive report this is preliminary, for I have spore cultures of a considerable number of other species. Yet it is more than ever apparent to me that I shall only be able to try a small sample of the species which I presently speculate might succeed or which have already succeeded with adventurous correspondents – and, even then, I'm increasingly aware that that total will itself be a mere sample of the potential.

In brief, a minimum of 99 different foreign ferns survived in the garden, a further 17 in the lath-house, a further 20 in the greenhouse, and a minimum of 49 in spore cultures, making a total of 185 surviving – at least – freezing over a protracted period. There were additional species in the garden, lath-house, greenhouse, and spore cultures: as yet unidentified spore culture volunteers (or, as I prefer to call them, "interlopers"). I haven't counted these because experience has taught me not to place entire reliance on my eye for "different" foreign ferns arriving in this way: I've been deceived by unfamiliar looking plants of native species and I err rather in the direction of wishful thinking – but I don't get it wholly wrong and have acquired excellent free gifts from spore cultures. Looking for these provides a positive incentive to closely scrutinise ferns being raised for plausibility of naming, which is advisable in any case since ferns raised from spores – and, come to that, those obtained from nurseries! – aren't invariably true to name, and such checking (so far as you are able) is important when claiming successes. The minimum number of frozen spore cultures I refer to in fact means that the 49 counted were only those where some preliminary judgement could be ventured as to their being true to name: small plants from many of these are now potted. While plausibility of naming with small immature ferns means no more than not implausibly as named, you can at least be assured that I haven't counted – for example – the spore culture nominally of a *Lepisorus* species in which, thus far, the young ferns emerging look like yet more *Cyclosorus*! Two further necessary qualifications are that for a very small percentage of the species totted up full hardiness seems most unlikely, though these (in the greenhouse) nevertheless proved to be a lot tougher than I would have expected; and secondly that the total for the garden includes many well-known hardy foreign ferns. Equally, however, it omits some: I don't count *Polystichum munitum* for example, which eluded me until Spring '82. There are, in fact, quite a few of the species mentioned in "Hardy Ferns" – even leaving aside those in the chapter on hardy foreign ferns which aren't therein described as hardy ferns for the open garden – which I don't have: likewise there are a considerable number of species described as hardy in other cultivation books or (still more so) which correspondents report as succeeding which I don't have. I should perhaps finally add that the species I have totted up above are in 44 genera.

MEDIA MENTIONS

Martin Rickard

I wonder how often items on television or radio, or in newspapers have gone unnoticed by the majority of members? Of course, once an event has passed it is not possible to do much about it, although I think it is interesting to see how much exposure our hobby receives. Just recently *Popular Gardening* (October 2nd 1982) ran a double page spread on ferns featuring a beautifully illustrated account of Philip and Mary Coke's garden in Gloucestershire (see also Regional Meetings), together with notes on general fern cultivation by Hazel Key. Altogether a most interesting compilation – doubly so because our Society's address was given. From time to time I have noticed other ferny notes here and there but no doubt I have missed several others. If there is sufficient interest among members, might it therefore prove worthwhile to compile periodic reviews of media mentions? Please let me know what you think.

NOTES ON NAMES

Richard Rush

1. *Adiantum pedatum* 'Aleuticum' of gardens = *A.p.* var *subpumilum.* I now have a specimen of (hopefully) true *A.p.* var *aleuticum,* which occurs in NE and NW North America. It is typically not dwarf but more compact than *A.pedatum* var. *pedatum*: fronds emerging closer together, more upright, with pinnules tending to be more glaucous, their margins often deeply incised and somewhat more toothy. Illustrations suggest that pinnules also tend to be somewhat more tapered. In sum the individually rather minor differences appear to add up to an elegant form of *A. pedatum.* In "The Fern Lover's Companion" (Boston 1923), G H Tilton refers to a dwarfer form of var. *aleuticum*, occurring in the NE, 6 – 10 inches high, which is evidently distinct from var. *subpumilum.* In East North America at least there appears to be some reduction in stature of plants northwards, and overall, in North America, a fair degree of minor variation: it would be interesting to know if this also applies through the Asian distribution of the species. As I write (early June) I have before me a well developed frond from my plant of 'Klondyke' (ex R. Kaye): I'm pretty sure that this is var. *aleuticum.*

2. *Blechnum "tabulare"* of gardens = *B.magellanicum.* True *B.tabulare* is altogether different and improbably hardy. (Both *B. chilense* and *B. magellanicum* have creeping rhizomes. *B. tabulare* typically forms a rosette of leaves and eventually a trunk up to 1m high – it is thus a small tree fern. Ed.) Not withstanding suggestions to the contrary *B. magellanicum ("tabulare")* and *B. chilense* are distinct species, and both are in cultivation – though quite possibly mixed up as a consequence of inaccurate pronouncements. Both of my plants came from British nurseries. Don't assume that what nurseries offer as *B. tabulare* is *B. Magellanicum*: the only safe bet is that if it is offered as hardy it will not be *B. tabulare*!!

VIVIPAROUS HARTSTONGUE

Russell Smith

Someone suggested to me that the Editor might welcome a note from me about an experiment in fern propagation, even though I am one of the Society's newest and least well-informed members, and I am shamefully vague about the details.

About ten years ago I thought I was doing something quite ordinary. I had read somewhere that it was possible to produce young Hartstongue ferns by pegging a frond down on to a suitable compost. So I did it, using a rather diminutive form which I had acquired some years before as one item in a parcel of mixed ferns from a woman in Ireland. In due time, three small plants appeared, and, as I recall, two survived. One of them I have here in my new garden – I think; though I am so unsystematic a gardener that I cannot be sure. Anyway, I shall try again, to see if it will do what I believe its parent did. (Alas it has subsequently withered away.)

Turning to my Fern books, I expected no difficulty in finding again the original advice on which I acted. Can I have dreamed it? The nearest I can get is one or two references to viviparous forms of the Hartstongue, in books by Anne Pratt and in Lowe's 'Our Natives Ferns'. Perhaps by chance I had a viviparous form, and failed to notice the bulbils.

Other members may be able to help with a reference, and may have made experiments, adopting a more scientific approach and making detailed observations. I wonder, too, if a similar method of propagation is possible with any other species or varieties. I know, of course, about the small plants produced along the rachis by forms of *Polystichum setiferum* 'Divisilobum', but if my recollection is correct, there was no suggestion that this method of propagation of the Hartstongue was dependent on the production of bulbils. If it does indeed work, it would be interesting to know its physiological basis.

MORE FERN PRODUCTION UNDER ARTIFICIAL LIGHT

Charles T Gleaves

In response to Nigel Hall's article, "Growing Ferns under Artificial Light", I would like to report on our fern-light gardening. At The Dawes Arboretum in Newark, Ohio, USA we started an outdoor fern garden of hardy North American natives in 1979. We have propagated most of our ferns from spores. Now that we have over fifty species in the garden almost all new ferns come from spore propagation. We do all of the propagation and winter growing under artificial light. We have a three tier light stand. On each tier there are two 120 cm fluorescent tubes and two 25 watt incandescent bulbs. The incandescent bulbs help to balance the light quality but are of low enough wattage not to produce excessive heat. The lights are 40 cm from the trays on which the plants rest.

For us the primary advantage of using lights instead of a glasshouse (where we initially did our propagation and growing) is that the day length is controlled. Dormancy can be prevented allowing young sporophytes to grow over the winter to sizes large enough to plant outside in the spring. Under the artificial lights the ferns also escape the commotion and variable light of the glasshouse.

We sow our spores in a sterilized artificial soil mix in petri dishes. When the sporophytes emerge they are transplanted to polyethylene covered clear plastic cups where they are grown to sizes of three to five centimetres. They are then moved to clay pots for further growth before being planted in the garden.

Lately we have been producing more ferns than we have room so we are hanging fluorescent lights in every available location in the office to accommodate the overflow. When the days lengthen they can be moved to the glasshouse.

DEVON FERNS ON CARDS

Alan Ogden

My other hobby of coin collecting often takes me to Coin Fairs where a group of dealers hire a hall for the day to display their wares and buy or sell coins. These fairs have often attracted similar interests particularly stamps and more recently a growing number of cigarette cards, post cards and other ephemera.

Wandering around such a fair a couple of years ago, my attention was suddenly taken by an album of trade cards lying open on a table displaying a page of cards with ferns! At first I thought they were cigarette cards, being the same general shape, but examination soon showed that they were issued by a confectionery manufacturer. Apparently such cards were not restricted to cigarettes, but in their heyday, before the war, could be found in packets of tea or sweets as well.

Questioning of dealers and quick reference to the catalogues, soon disclosed the fact that this was the only set of cards depicting ferns, thus nipping a new hobby smartly in the bud. They were issued in the late 1930s by James Pascall Ltd. and obviously would be made increasingly rare by the offer on the back to exchange a set or a hundred assorted cards for a "presentation casket of sweets and chocolates". Who could resist such an offer? Somebody did for these cards can still be found albeit with some difficulty and a set of thirty cards now has the catalogue value of about £15.

For many months I could only obtain the one page of about 18 cards I found initially but I was assisted to the full set by another member of the Fern Society, Mrs P D Hartill who, coincidentally, also collects trade cards.

The full set of cards makes an attractive possession, being in full colour albeit rather subdued as befits the ferns. The names given on the front are the popular names, the

Adder's tongue
LADY FERN
POLYPODY
BRACKEN
CRESTED FERN
RUSTY-BACK FERN
Hart's Tongue
PRICKLY SHIELD-FERN
The One-Sided Filmy Fern

A Selection of Cards

Latin being restricted to the back and not always accurate at that! The Polypody is given as "Phyllitis scolopendrium" as is the Harts Tongue but two varieties of Harts Tongue are depicted and named as "Scolopendrium Vulgare var. crispum" and "Ramo-Cristatum Moly".

I don't think many members of the Fern Society are aware of this set of trade cards. They throw an interesting light on a bygone age and a challenge to those who collect anything to do with ferns.

THE LAZY SPORE GROWER'S GUIDE
(With acknowledgement to Geoffrey Gilbert*)

Martin Rickard

For some time I was put off growing ferns from spores because it all sounded rather tedious and boring, and by many accounts doomed to failure anyway. What changed my mind I'm not sure, but I do know that after I had seen many different methods used by other members I decided to have a go at a simplified hybrid system borrowing ideas from many sources. As this is an easy technique which has proved reasonably successful (I do get failures!) I thought I would outline the system here in the hope I might encourage other *Bulletin* readers to have a go!

1. Get some spores. The Society spore exchange can help here – but please remember it is an exchange so please try and help by sending in some spores if at all possible. Collecting spores from the garden should be done in late summer (or autumn for most polypods). Check that the sporangia have not burst first, then cut off a pinna or two and slip it into an envelope or special packet (see *Bulletin* Vol 2, No 1, p 32) and leave it for a few days while the sporangia dry and shed their spores. Eventually a fine dust, the spores, should become visible at the bottom of the packet. There is little more which can

be done at this stage so store the packets in a dry place until the next spring.

2. Prepare the soil. The best month for this in my opinion is March as once things have been set up, growth conditions are as good as possible for as long as possible before the next winter. Simply collect a few potfulls of garden soil where weeds are minimal. Boil some rainwater in an old saucepan – let it boil for a few minutes as it might help to kill some of the wildlife in the rainwater. Then, with the water still as hot as possible, flood the surface of each pot (I try to do this within ten seconds of it being on the boil). This serves to kill the spores of most potential mosses and fungi in the surface layers of the soil.

3. Allow it to cool for 10–15 minutes but keep pots covered with newspaper or polythene to prevent contamination with chance spores.

4. Sprinkle the spores lightly onto each pot and label immediately, always do this at a distance from other pots to minimise the risk of cross sowings.

5. Lay the largest clean clear polythene bag available on its side and slide the freshly sown pots in. Once the bag is full do not tie it shut, but just let it rest closed. Store this bag full of its pots in a well lit spot – but not in direct sun.

6. Periodically (2-4 weeks) check moisture. It is unlikely to be too dry but humidity in the bag could be too high so it might be desirable to prop the end of the bag open. If moss is growing gently weed it out, preferably with tweezers.

7. After 1-2 months prothalli should become visible.

8. After 3, 4 or 5 months young sporophytes (true ferns) will appear in the more rapid growing cultures. At around this stage water will almost certainly be necessary, again use boiled rainwater (but this time cool!) and apply it very gently to the soil surface.

9. Once sporophytes are getting a bit thick in the pot in early autumn (usually when they are about 1 cm high) prick on selections into other pots and label. I suggest about 15 per pot – it is wise to do a few spare! Keep covered for a while until they have settled down then gradually harden them off – not usually completely before the next spring.

10. The original spore culture should not be discarded once a batch has been pricked on. Keep it in its polythene bag in case of disasters with the first lot, and you never know you might get something completely different come up in a later flush.

11. Eventually, with a bit of luck, you should become inundated with young ferns. That's when the real problems begin – trying to find space in the garden!

(* Author of the book "The Lazy Gardener's Guide", a past member of our Society who died in 1974)

SOUTHPORT FLOWER SHOW – 19/21 AUGUST 1982

J W Dyce

Prospects looked gloomy when heavy rain on the eve of this year's Flower Show left the ground very sodden, but fortunately it did not continue and apart from a few light showers the weather was dry for the whole three days, although bitterly cold and very windy. In spite of this numbers attending the Show reached the normal high figure.

It did not appear to have been a good year for ferns in the north, for many of the exhibits on the show benches were rather poor and there were many gaps. Bob Trippitt did not show this year and his splendidly grown ferns were missed. Without the Brookfield entries it seemed very evident this year that fern exhibiting at Southport would collapse – they, as usual, had entries in all the classes except one. Of course, living in the area, they are well-situated for so doing, but even they complain of the high costs involved, which swallow up their prize money.

As usual, our Society's Silver Challenge Trophy was won by Noel Brookfield. There was only one other entry in the class for a large group of ferns. Both were well arranged but were not the very large exhibits of beautifully grown plants which at one time were the normal standard for this class. This year there was difficulty in getting a sufficient number of suitable plants to fill the spaces allotted, with the result that many inferior ones had to be used. However, from the amateur fern growers point of view, the exhibits served a useful purpose in bringing to their notice specimens of the best fern varieties available – if only for that reason, it is to be hoped the fern classes can continue, to be a "shop window" for them.

Some very good plants, although not so many as usual, were noted – *Athyrium filix-femina* 'Plumosum' and 'Victoriae', *Dryopteris affinis* 'The King', and *Polypodium australe.* 'Cambricum' and 'Cambricum Hadwini' all being particularly good. Again Brian Russ put up a superb exhibit of Aspleniums in Class 18 – *Asplenium ceterach, A. trichomanes* and *A. viride.* All were large and beautifully grown plants and fully merited – if only there was one – a prize for the best exhibit in the fern classes.

Mrs Hazel Key of Fibrex Nurseries was the fern judge.

The prize winners are listed in order of winning as follows:

Class 7 Group of hardy British ferns arranged naturally in an area not exceeding 100 square feet
J Brookfield and son, R F Brookfield (two entries)

Class 8 Six hardy British ferns (dissimilar)
No first prize, J Brookfield and Son (one entry)

Class 9 Six greenhouse ferns (dissimilar)
J Brookfield and Son (one entry)

Class 10 Three hardy British ferns
H C Shepherd, J Brookfield and Son (two entries)

Class 11 Three foreign ferns, hardy in Great Britain
No first prize, J Brookfield and Son, B Russ (two entries)

Class 12 Three scolopendriums
No first, no second prize, J Brookfield and Son (one entry)

Class 13 Three polypodies
J Brookfield and Son, R F Brookfield (two entries)

Class 14 Three polystichums
No first prize, J Brookfield and Son (one entry)

Class 15 Three athyriums
J Brookfield and Son, R F Brookfield (two entries)

Class 16 Three dryopteris
No first prize, J Brookfield and Son (one entry)

Class 17 Three plants gymnocarpium, phegopteris and/or thelypteris
No first prize, J Brookfield and Son (one entry)

Class 18 Three aspleniums, excluding *Asplenium scolopendrium*
B Russ, H C Shepherd (two entries)

Class 19 One British fern
A R Busby, A Shellard, J Brookfield and Son (four entries)

Class 20 One greenhouse fern
J Brookfield and Son, A R Busby, Mrs M C Wright (seven entries)

The British Pteridological Society Trophy
J Brookfield and Son

Our Stand in the Societies' Tent was manned by three members this year, an improvement on last year when Matt Busby and Jimmy Dyce held the fort on their own. This year, with the addition of Nigel Hall, we were allowed a little more free time. Several members called to see us during the three days and some of them were able to assist in dealing with enquiries. The Secretary had his usual exhibit, showing the growing of ferns from spores and this provided interest for many members of the public. Nigel had a display, and some fern books were on exhibit. The Stand decorations were mostly fern fronds in vases.

A LOCAL SURVEY OF WOODSIA ALPINA

In 1981, John Mitchell of the Nature Conservancy Council (SW Region, Scot.) completed a field survey of known *Woodsia alpina* sites in the Crianlarich – Bridge of Orchy area at the western end of the Breadalbane range in Scotland. The main objective of the survey was to establish a base-line to facilitate long-term monitoring of changes in the population size. In all, 9 separate colonies on 5 different hills were photographed and documented, together making up a total of 240 tufts, some of which comprised of more than one plant.

A further 25 tufts, scattered here and there near the main colonies, were also seen. Altitude of the colonies ranged from 1,725′ – 2,300′, the most favoured habitat of this rare fern being crumbly grooved limestone. Aspect was very variable, those colonies facing directly into the sun being very prone to desiccation during prolonged dry spells, with reduced numbers of plants in the following year. Really luxuriant plants only occurred in shady and permanently damp situations. At one such site, specimens with 40+ fronds up to 5″ long were recorded.

BOOK REVIEWS

THE GENUS POLYPODIUM IN CULTIVATION (POLYPODIACEAE)

by Barbara Joe Hoshizaki. Baileya, a Journal of Horticultural Taxonomy, Vol. 22, Nos. 1 & 2, June 1982. L H Bailey Hortorium, Ithaca, New York.

In these two issues of Baileya Barbara Joe Hoshizaki gives an account of representatives of the genus Polypodium in cultivation in the USA.

Non-hardy species make up the bulk of the taxa covered. Many of these are not common in cultivation in the UK, but a flick through these booklets is sufficient to get an impression of what we are missing. All forms are shown in silhouette and some of the more remarkable are illustrated with black and white photographs. Those which particularly catch the eye are the forms of *Polypodium polycarpon, P. aureum* 'Exstrand', *P. a.* 'Mandaianum', *P. a.* 'Mexican Tasseled' and *P. subauriculatum* 'Knightiae'. Some of these appear to be plumose forms akin to our own Welsh Polypody, but larger and more dramatic.

Coverage of the hardy forms seems to me to be rather incomplete but perhaps reflects a relative lack of interest in these forms in the USA. Certainly in the UK we have many additional forms of our three native species as well as several others from overseas including North America. I gave a provisional list of forms of the three British species still in cultivation in last year's Bulletin, and there is little point in listing them again here (although I hope to be able to publish a revised list soon). The most amazing omissions are the two varieties of *P. glycyrrhiza.* These are *P. g.* 'Malahatense' which is certainly in cultivation in Seattle, see the 1981 Bulletin, and *P. g.* 'Longicaudatum', again see my list in the 1981 Bulletin. One item of particular note which caught my attention is that the rhizome of *P.hesperium* apparently has a licorice taste not unlike *P.glycyrrhiza,* a character which was thought to be specific in the latter species, thus reducing the value of this character as a diagnostic feature.

Overall these booklets are very valuable reference works for all fern growers be they in the USA or anywhere else in the world.

Martin Rickard

FERNS: A NATURAL HISTORY by E Frankel, published by The Stephen Green Press, Brattleboro, Vermont, 1981. XIII, 264pp. Ills. $ 17.50.

This is an original and distinctive book. With so many books on ferns being published it is quite an achievement to produce one that stands clear from all the others. By using 'Natural History' in its original sense the author has managed to present a more general overview of things ferny than in any other book I know. The book is not a nature book; it is a book about the nature of ferns.

The book is designed for popular appeal and perhaps more importantly for clear comprehension by non-botanists and non-fern experts. It sets out to place ferns in the wider context of plant life. It examines ferns in terms of structure, life-cycle, evolution, classification, propagation and culture. Along the way it considers fern-crafts, fern-folklore, fern-energy, and fern-history. The language is somewhat colloquial and non-specialist; a feature which may cause some people to recoil in horror. I prefer to see it as a valid attempt to write for a particular type of audience. Too often books on ferns have been written by botanists whose ability to conceive of a world that is not populated by people already converted to interest in botany, is extremely limited. Edward Frankel's doctorate was in education and the educationalist's skills are clearly seen. Each chapter has a useful summary; there are a number of challenges to test understanding, and the book ends with an interesting attempt to make the reader look at, and think about, the differences between species of ferns.

I find chapter seventeen a complete irrelevence. It is about fuels, energy and the environment; it seems to have little to do with the rest of the book and the odd sentence referring to ferns only serves to emphasize the chapter's incongruity with the 'natural history' of ferns.

The book is well illustrated with many fine line drawings by Edgar Paulton. The illustrations have a 'homely' quality which is eminently suited to the style of the book. Edgar Paulton also designed the book which is very clear to read and easy to use. It is a book designed to convey information not a book designed to show how clever the author is.

There are minor errors in the book which I know are only too apparent to the author and illustrator, but the publisher's willingness to alter the typeset copy was, I understand, rather limited.

This is a book to be read not a book to be consulted. It is a serious attempt to put the nature of ferns clearly into a general perspective for a general audience. For anyone just beginning to be interested in ferns or serious amateurs, who suspect gaps in the foundations of their knowledge about ferns, this should be an invaluable book. I hope it becomes available on this side of the Atlantic as, although American, its message and content would be of considerable interest to fern enthusiasts in Britain.

Nigel Hall

PHYLLITIS HYBRIDA by D E Meyer, privately published, 112pp. 1981.

This monograph is written in German with a short English summary. While not able to read the German text I can perhaps do a service by bringing this booklet to the notice of other pteridologists and particularly those who are German speaking.

Phyllitis hybrida is a hybrid species derived from *Asplenium ceterach* and *Phyllitis hemionitis*. The book contains numerous diagrams and illustrations of this and some other hybrids in the genus *Asplenium*, together with detailed maps of the distribution of *P. hybrida* and photographs of the habitats and the plant in situ.

Overall this is obviously a booklet containing much detailed scientific information of value to the serious pteridologist, but its value will also extend to the keen amateur grower as this is a fern grown in quite a few private collections.

Martin Rickard

Since writing this review I have been saddened to hear of the death of Dr Meyer in February of this year at the very young age of 56. While we never met I know his death is a great loss to pteridology. Since 1952 he has published 66 different biological items, the vast majority of them on Pteridophytes. He wrote to me a few days before he died offering the Society 25 copies of this useful monograph together with another paper, free of charge, even though it had cost 225 DM (£50) to have this material printed. I hope a full Obituary will be published in due course.

GUIDE TO THE PRICES OF ANTIQUARIAN AND SECONDHAND BOTANICAL BOOKS (1970–1979) – CRYPTOGAMIC LITERATURE.

Edited by L Vogelenzang, published by Boerhaave Press. P O Box 1051-2302 BB Leiden, Holland. ISBN 90 70153 16 5, price 95 Dfl. including postage (about £20) vi, 517 pp. 1982.

This book, written in English, lists alphabetically by author all the works on cryptogamic botany that the editor has seen in booksellers' catalogues over the period 1970-1979 (a total of over 4500 titles). Under each entry bibliographical details are given followed by prices listed in date order. Where two or more copies occurred for sale in one year the highest and lowest values are given. All values are in US dollars but a comprehensive currency conversion table is provided.

The subject range is very wide and fern entries inevitably account for only a relatively small proportion of the total. The list is quite strong on scientific works on ferns but Victorian and horticultural books are curiously rather neglected. For example only one of Druery's three books is listed and Anne Pratt's very common book "The Ferns of Great Britain and their Allies" has only two entries. Moore's "Nature Printed British Ferns" octavo or folio editions, are not even mentioned. These omissions are particularly hard to understand as the octavo Moore was listed by Wheldon and Wesley (*THE* UK natural history booksellers) at least six times and the folio edition at least nine times during the

1970s. There is evidence elsewhere in the book that Wheldon and Wesley's catalogues *were* consulted.

Of course in a book of this nature there are typographical errors. Two which caught my eye were "Flora of Berwickshire" by Druce, should be Berkshire, and "Flora of the North-east of Iceland" by Stewart and Corry, should be North-east of Ireland!!

Despite these shortcomings there is no doubt that this is a very interesting compilation which should be of value to booksellers and collectors alike. The price of about £20 may be too much for many private collectors, but hopefully this volume will be available for consultation in most botanical libraries.

Martin Rickard

EXOTIC FERNS IN AUSTRALIA by D L Jones and C J Goudey. Published by A H & A W Reed Ltd. Sydney, 72pp. 1981.

Once again our Australian friends have done what seems to be impossible nearer home. They have produced yet another fern book including numerous first rate colour photographs (one hundred). This is the sort of book which is a delight to browse through but which is at the same time a valuable source of information. None of the ferns covered are Australian natives, but they are the best of the exotic species cultivated in Australia. Many of the species and varieties illustrated are not hardy, but the majority are in cultivation in the UK whether in the greenhouse, garden or simply as houseplants.

The book begins with introductory chapters but the bulk of the book is given over to the alphabetically arranged photographs and accompanying text. I was particularly pleased to see plants of *Blechnum spicant* 'Cristatum' and *Adiantum capillus-veneris* 'Fimbriatum' included. These are cultivars extremely rare in England if indeed not extinct. Also of great value are illustrations of some of the forms of adiantum commonly cultivated as pot plants – any contribution towards correct nomenclature in this group is very welcome.

Unfortunately there are quite a large number of errors, mostly typographical, these are outlined below by Jimmy Dyce. However, despite these errors this book makes a very desirable addition to the fern grower's bookshelf.

ERRATA – Most of these errors, if not all of them, have been made by the printers, NOT the authors. A number of the photographs are depicted upside down. Nos. 7 and 8 on page 23 are reversed – for "left" read "right" and for "right" read "left".

Polypodium vulgare cv 'Semilaceratum' on page 18, should be *P. vulgare* agg cv 'Semilacerum'

Osmunda regalis on page 51 looks like *O. gracilis*

Polypodium vulgare cv 'Pulcherrimum' on page 57 looks like *P. vulgare agg.* cv 'Cornubiense'

Polystichum setiferum on page 59 is a variety – it looks like 'Divisilobum'.

In the Index all the Adiantums are, in Chris Goudey's words, "mucked up". The printers blame the computer!

Page 70 – Fern Societies and Study Groups –
The British Pteridological Society, c/o A R *Busby,* NOT *Bushy.*
The Japanese Pteridological Society, c/o Dr K *Iwatsuki,* NOT *Isatsuki.*
Los Angeles International Fern Society – *La Mirada,* NOT *Lattiranda.*
Nippon Fernist Club, c/o Department of Forest Botany, etc. Delete Professor Satoru *Kurata,* NOT *Karata.* He has now died.

Martin Rickard and J W Dyce

HANDBOOK ON FERNS. A special edition of *Plants & Gardens,* Vol.25 No. 1 (1976) 1981. Ed. Helen S Hull, 76pp. Brooklyn Botanic Garden, Brooklyn, N.Y. 11225. Price $5.00.

This is a reprinting with some updating of the Handbook first published by Brooklyn Botanic Garden in 1969. It is an excellent miscellany by F. Gordon Foster, T.M.C. (Tommy) Taylor, Edgar T. Wherry, Mary Noble and a dozen other equally notable authors. Some articles are unsigned which one must assume are the work of the editor.

It is a book for the gardener with many useful tips on how to plan your fern garden and the effect of ferns in the landscape and with associated wild flowers. Choosing the right flowering plant to grow with ferns of different habitats is an art and although this book is written for a North American audience it gives the British grower many ideas. There is a chapter on growing ferns from spores with useful tips.

The book also has a reference section which will have a lasting value. George H.M. Lawrence gives a comprehensive list of books and papers on ferns for cultivation and their identification. There is a Guide to 43 useful (North American) ferns with silhouettes to aid identification. In all the Brooklyn Botanic Garden is to be congratulated on this little book which is obviously a bestseller as time and successive editions or reprints have shown.

A C Jermy

FERNS

Ida Holmes-Moss

I love the cool green look of ferns,
Their elegance, their twists and turns;
I love them for their slender grace,
Their tendency to float in space:
The ladder fern that climbs so high
Its limit seems to be the sky;
The lovely, gentle maidenhair –
Perhaps of all its kind most fair –
And many others, all designed
To lift the heart and ease the mind
Of those like me, whose pleasure springs
From contemplating growing things.

(By kind permission of Women's Weekly)

OBITUARIES

Erland Norgaard. It was with great regret that I received the news at the beginning of this year from his widow, Mrs Olga Norgaard, that her husband had died some months previously. The Norgaards run a nursery in Denmark, Firma Norgaards Stauder, which has very strong fern interests. They have been members of our Society since 1971. Over the years I have corresponded quite a lot on fern matters with Mrs Norgaard who has been interested in ferns since her childhood, and I have always been very happy to recommend the nursery as a very reliable supplier of very good British fern varieties.

I am happy to know that the firm is being carried on by Mrs Norgaard and her son and I wish them continued success. We extend our deepest sympathy to them.

J W Dyce

We also regret to announce the deaths of the following members:

Dick Ide of Camberley, Surrey on 13 November 1982. We extend our deepest sympathy to Mrs E R Ide.

Dr D E Meyer, see page 214.

R Stokoe of Cockermouth, Cumbria, an expert on alpine fern distribution, particularly in Lakeland. Ralph will be sadly missed.

Dr H G Davies

G P Smith

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Meetings Committee: J W Dyce, M H Rickard, J R Woodhams and Officers

Saturday 19 February	Annual General Meeting and Lecture Meeting to be held at Room G17, Main Building, University of Aston, Gosta Green, Birmingham B4 7ET at 2.30 pm.
Saturday 14 May	Visit and Lecture with Soirée at Chelsea Physic Garden, 66 Royal Hospital Road, London SW3 4HS at 3.00 pm.
Thursday/Monday 26/30 May	Long Weekend Meeting in Northumberland *Centre Hotel:* Coquet Vale Hotel, Rothbury, Northumberland *Leaders:* Chris Page and Trevor Walker
Friday/Sunday 10/12 June	Weekend Meeting on the Wirral Coast (Saturday) and at Calderstone Park, Liverpool (Sunday). *Centre Hotel:* Parkgate Hotel; Parkgate, Wirral, Merseyside *Leader:* Matt Busby
Friday/Sunday 29/31 July	Weekend Meeting in the Forest of Dean and Wye Valley. *Centre Hotel:* Forest House Hotel, Cinderhill, Coleford, Glos. *Leader:* Chris Page
Thursday/Saturday 18/20 August	Southport Flower Show. Many fern classes. Visit the Society's Stand in the Societies' Tent.
Friday/Sunday 19/21 August	Weekend Meeting in Ashdown Forest, Hampshire, Sussex *Centre:* Rogate Field Centre, Red House, Rogate, Petersfield, Hants. *Leader:* Clive Jermy
Sunday/Friday 11/16 September	*Biology of Pteridophytes* Symposium at the University of Edinburgh and Royal Botanic Garden, Edinburgh.
Saturday 24 September	Visit to Richard Rush's garden at 17 Toronto Road, Ilford, Essex from 2.30 pm.
Saturday 22 October	Lecture Meeting at the British Museum (Natural History), Cromwell Road, London SW7 5BD at 2.00 pm.

REGIONAL DAY MEETINGS

If you would like details of additional day meetings in the following areas, please contact the local organiser, enclosing a stamped addressed envelope.

South-west England: Christopher and Mary Potts, 4 Kennel Lane, Webbington,
Near Axbridge, Somerset. Tel. 093 472 545.

West Midlands: A R Busby, 42 Lewisham Road, Smethwick, Warley,
West Midlands. Tel: 021 558 4481.

North-west England: Nigel Hall, 3 Sydney Road, Bramhall, Stockport, Cheshire,
Tel: 061 440 8986.

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THE NIPPON FERNIST CLUB
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For further information write to:
Dept of Forest Botany,
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BULLETIN

edited by

M H RICKARD

VOLUME TWO NUMBER FIVE

1983

THE BRITISH PTERIDOLOGICAL SOCIETY

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Honorary General Secretary and British Fern Distribution Recorder A.R. Busby, *42 Lewisham Road, Smethwick, Warley, West Midlands B66 2BS. Tel: 021-558 4481*

Treasurer Dr. B.A. Thomas, *Biological Sciences Department, University of London, Goldsmiths' College, Rachel McMillan Building, Creek Road, London SE8 3BG*

Membership Secretary Lt. Col. P.G. Coke, *Robin Hill, Stinchcombe, Dursley, Gloucestershire GL11 6BG*

Meetings Secretary Kathryn Kavanagh, *British Museum (Natural History), Cromwell Road, London SW7 5BD*

Publications Secretary Devon Masarati, *27 Silsoe House, Park Village East, London NW1 7QH*

Editors:

Fern Gazette Dr. C.N. Page, *Royal Botanic Garden, Edinburgh EH3 5LR*
assisted by J.A. Crabbe, A.C. Jermy

Bulletin M.H. Rickard, *The Old Rectory, Leinthall Starkes, Ludlow, Hereford SY8 2HP*
assisted by A.R. Busby and J.W. Dyce

Spore Exchange Organiser R.F. Cartwright, *13 Perry Mill Road, Peopleton, Pershore, Worcestershire*

Archivist N.A. Hall, *3 Sydney Road, Bramhall, Stockport, Cheshire SK7 1NH*

Committee Marion Barker, Josephine Camus, J.A. Crabbe, J.K. Cramp, Barbara S. Croxall, P.J. Edwards, N.A. Hall, R. Rush, Gwladys Tonge, J.R. Woodhams

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The *Fern Gazette* and the *Bulletin* are the journals of the British Pteridological Society, published annually. The Gazette publishes matter chiefly of specialist interest on international pteridology, the Bulletin topics of more general appeal.

THE BRITISH PTERIDOLOGICAL SOCIETY was founded in 1891 and today continues as a focus for fern enthusiasts. It provides a wide range of information about ferns through the medium of its publications and available literature. It also organises formal talks, informal discussions, field meetings, garden visits, searches for rare fern books, plant exchanges and a spore-exchange scheme. The Society has a wide membership which includes gardeners, nurserymen and botanists, both amateur and professional, in Britain and overseas. Articles for the Society's publications are received from, and reflect the interests of, Society members.

Membership is open to all interested in fern and fern-allies, worldwide. Subscription rates (due on 1st January each year) are: Full Personal Members £7; Personal Members not receiving the Fern Gazette £5; Student Members £5; Subscribing Institutions £8. Applications for membership should be sent to the Membership Secretary (address above), from whom further details can be obtained. (Remittances made in currencies other than Sterling are £0.50 extra, to cover bank conversion charges).

The British Pteridological Society is affiliated to the Royal Horticultural Society.

Back numbers of the *Gazette* and *Bulletin* are available for purchase from the Treasurer (address above), from whom further details can be obtained.

THE

BULLETIN

OF THE

BRITISH PTERIDOLOGICAL SOCIETY

Vol 2 1983 No 5

EDITORIAL

Changes are afoot!

At the suggestion of the Editorial Sub-committee, the Society's main Committee have agreed on a new journal policy – and with any luck this issue of the Bulletin should be the last in this format.

Briefly, from next year the Society plans to publish 3 journals. These should be:–

1. The Fern Gazette as before.
2. A new style Bulletin – which will be basically the Society's proceedings, i.e. Society business and meetings' reports. This should be issued at the end of the year (as with the present Bulletin) and will be edited by our Hon. Gen. Secretary Matt Busby.
3. A new journal which will carry notes and articles similar to those making up the bulk of this issue of the Bulletin. It is hoped to publish this new journal in late spring each year, although for 1984 it will probably be a little later, coming so soon after this Bulletin. I will edit this new journal.

There are several advantages of this structure:–

1. It breaks the year into three mailings to members instead of two as at present.
2. It brings the issue of general interest fern notes and comments forward to the beginning of the northern hemisphere growing season, and allows the preparation of written material to be undertaken in the winter months when the lure of the garden is small!
3. It allows the Society's proceedings to be issued at the end of the year, as at present.

Size of these two new journals is not rigid but hopefully the overall volume of material produced will be more than the 50 odd pages in the current volume of Bulletins, although size will be permanently under review to keep a check on costs, etc.

As yet names for the new journals have not been finalised.

In the short term the outcome of all this is that material for the new journal is needed urgently, hopefully by February 28th 1984, and January 31st in subsequent years. Many members must be sitting on original observations and ideas, why not work off New Year withdrawal symptoms by committing them to paper?!

For the new style Bulletin, the deadline will be as before, i.e. August 31st, except in the case of late meetings' reports, etc. where this date is obviously impossible.

SECRETARIAL NOTES

A R Busby

MEETINGS CARDS – Meetings cards for 1984 are enclosed with this Bulletin to all inland members. Overseas members visiting Britain can obtain them on application to the Meetings Secretary.

PUBLICATIONS BY AIRMAIL – Our journals can be sent by airmail to overseas members, provided they advise the Membership Secretary and pay an additional subscription to cover airmail postage. The additional amount required is £2.50 for full members and £1.50 for those receiving only the Bulletin. The amounts should be sent with the annual dues.

COMMITTEE VACANCIES – In accordance with paragraph 3, section 3 of the Society's Constitution, three vacancies will occur due to the retirement of the longest serving Committee members. Nominations are invited from members of the Society to fill these vacancies at the Annual General Meeting in February 1984. The names of the nominees, proposers and seconders, together with a letter from the nominees indicating their willingness to serve, should reach the General Secretary by the 31st January 1984.

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SUBSCRIPTIONS 1984 – Members are reminded that subscriptions for 1984 are due on the 1st January 1984 and should be paid to the Membership Secretary, Lt Col P G Coke, Robin Hill, Stinchcombe, Dursley, Gloucestershire, GL11 6BG. Cheques should be made payable to 'The British Pteridological Society'. Bankers Order Forms are available from the above address.

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AFFILIATION TO THE ROYAL HORTICULTURAL SOCIETY – Our Society is affiliated to the RHS, enabling a limited number of members to enjoy certain privileges in connection with RHS Shows, competitions and services. A small number of tickets are available for the Chelsea Show and the Great Autumn Show. These tickets will be allocated to members on a first-come-first-served basis. There are also two transferable tickets available for all other RHS Shows. Application for tickets or further details, together with a stamped, addressed envelope, should be made to the BPS General Secretary.

READING CIRCLE – The American Fern Journal, a quarterly containing much information for those seriously interested in ferns, is circulated to Reading Circle members. To join, apply to Mrs Mary Potts, 4 Kennel Lane, Webbington, Nr Axbridge, Somerset.

THE GREENFIELD FUND – This fund, set up as a memorial to one of our Society's great fern growers – Percy Greenfield, is used to finance approved research projects, helping with the costs of necessary equipment, books and travel expenses. Awards for meritorious achievements such as the introduction of a new fern variety or plant, or some of the Society publicity projects would be considered as worthy of help from the fund. Percy Greenfield's interest leaned very much towards the non-scientific side of our activities and it is felt that he would want this to be taken into consideration when decisions are made. Workers eligible for university or college grants and similar support will not therefore be eligible for help from the fund. Members with projects wishing to benefit from this memorial fund should apply to the trustees via the General Secretary.

BRITISH FERN GAZETTE BINDERS – Binders for volumes 10 & 11 of the British Fern Gazette are available from the General Secretary. Attractively produced with light green hardboard covers and gold blocked lettering on the spine: only £2.50 each including postage and packing. This applies to inland members only. Cash with order, please make cheques payable to 'A R Busby'. Price of binders to overseas members available on application to the General Secretary.

Please note: apart from the lettering, these binders can be used to bind volumes of the BPS Bulletin.

LEEDS AREA REGIONAL MEETINGS – Mr Jack Bouckley, 209 Woodfield Road, Harrogate, North Yorks, HG1 4JE is keen to form a group in the LEEDS/HARROGATE area. Members interested in organising local meetings in this area should write to Mr Bouckley at the address above.

Preliminary Announcement – XIV INTERNATIONAL BOTANIC CONGRESS
Under the auspices of the International Union of Biological Sciences
Berlin (West), Germany, 24th July to 1st August 1987.

The **Programme** will comprise 6 Divisions: metabolic botany, developmental botany, genetics and plant breeding, structural botany, systematic and evolutionary botany, and environmental botany. All plant groups will be considered, and aspects of both pure and applied research will be covered. Special emphasis will be laid on inter- and multidisciplinary topics. There will be plenary sessions, symposia, and sessions for submitted contributions (posters).

The **Nomenclature Section** will convene in Berlin on 20th to 24th July 1987.

Pre- and post-congress scientific **Field Trips** will be arranged to various part of Central, South and North Europe.

The **First Circular**, containing further details and a preliminary registration form, is now available. Send your name and full address to ensure your inclusion on the mailing list. Your early reply will be appreciated.

Chairman of the Organising Committee: Prof. Dr. Dr. h.c. K. Esser.

Enquiries should be sent to the Secretary of the Organising Committee, Prof. Dr. W. Greuter.

Congress Address: XIV 1BC, Bot. Garden & Museum, Kőnigin-Luise-Str. 6-8, D-1000 Berlin (West) 33, Germany.

NEW OVERSEAS FERN SOCIETIES

A R Busby

Within the last two years, two new fern societies have been brought to my attention.

During March 1982, I was pleased to receive a letter from the newly formed Tasmanian Fern Society. Four newsletters are published each year and the subscription for overseas members is A$ 10.00 per annum. Further correspondence has now resulted in the exchange of journals and other information. Members interested in corresponding with this society should write to: Miss Julie Haas, Secretary, Tasmanian Fern Society, P.O. Box 74 MOONAH, Tasmania 7009, Australia.

More recently I received a letter from another brand new fern group, The Fern Society of the Philippines, 'an association of fern collectors, horticulturists, students of pteridology and botanists'. This society has plans for monthly meetings in Manila, fern hunting expeditions and staging ferns at national flower shows. They hope to launch their first issue of the official bulletin during August/September 1983. Members interested in corresponding with this society should write to: Delia Domacena-Adefuin, Secretary, The Fern Society of the Philippines, The National Museum, P. Burgos Street, Manila, Philippines.

We welcome these new fern societies and wish them every success in the future.

(It has come to my notice that members wishing to join the Fern Society of Victoria should apply to: Mr Keith Stubbs, 14 Afton Street, Essendon, Victoria 3040, Australia. Overseas membership dues are A$12.00. There is a monthly Newsletter – Ed.)

B P S PUBLICATIONS BACK NUMBERS

Dr B A Thomas

Back numbers of the Society's publications are available at the prices listed below. Individual parts may be purchased separately at the proportional price. Some of the older parts have been reproduced but to a high standard.

GAZETTE			MEMBERS	NON-MEMBERS & SUBSCRIBERS
Volumes	1 – 7	(12 parts per vol.)	£15 each	£18 each
	8	(10 parts)	£13	£15
	9	(8 parts)	£20	£24
	10	(6 parts)	£21	£27
	11	(6 parts)	£27	£33
	12	(Parts 1–4)	£20	£26
NEWSLETTERS 1967–72				
Numbers 5 – 10			£1 each £5 per set	£1.20 each £6.00 per set
BULLETIN				
Volume	1	(6 parts)	£15	£21
	2	(parts 1–4)	£12	£14

Orders should be sent to the Honorary Treasurer: Dr B A Thomas, Dept. of Bio. Sciences, University of London, Goldsmiths College, Rachel McMillan Building, Creek Road, London, SE8 3BG.

Please note: Invoices will be sent separately at the time of dispatching the order. Payment should be made on receipt of the publications. Postage and packing is extra.

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THE AMERICAN FERN SOCIETY INC.

wishes to extend an invitation to readers of this Bulletin to join the American Fern Society. Regular members receive the "Fiddlehead Forum" six times a year. This newsletter is published for the benefit of those who are interested in growing ferns, hunting for them, and expanding their general knowledge of ferns. Journal members receive, in addition to "Fiddlehead Forum", the scientific quarterly "American Fern Journal". Membership costs $ 5.00 and $ 8.00 per annum, respectively, plus mailing charge of $ 2.00 or $ 4.00 per annum, respectively, beyond the USA, Canada and Mexico. For particulars please write to Dr L G Hickok, Dept. of Botany, University of Tennessee, Knoxville, TN 37916, USA. Prospective members residing in Great Britain should write to Nigel Hall, 3 Sydney Road, Bramhall, Stockport, Cheshire SK7 1NH, by 31st January 1984. British members should note that the American Fern Society has to add a postage surcharge for overseas members. Membership will cost $ 7 and $ 12 respectively (£4.70 and £8.00 approximately at current exchange rates).

B P S BOOKSALES – STATEMENT OF ACCOUNTS FOR 1982

J W Dyce

1982			
31 December	Books in stock	£1450.00	
	Outstanding invoices	6.00	
	Cash in Hand	193.00	£1649.00
1981			
31 December	Books in stock	£818.00	
	Outstanding invoices	226.00	
	Cash in Hand, after profit £150 paid to Society for year 1981	320.00	£1364.00
APPRECIATION OVER THE YEAR			£285.00
PART PROFIT PAID TO SOCIETY FOR YEAR 1982			150.00
BALANCE RETAINED IN BOOKSALES			£135.00

Transactions during 1982 –

Purchases	£1567.00
Sales	£1440.00

Victorian Fern Craze – Remaining stock 24 copies. Sales during the year included in above figures.

Hardy Ferns – Stock and sales NOT included in above figures.

Sales during year – 38 copies. Received and paid to Society £363.00 (At £10.00 per copy receipts should have been £380.00. Shortfall is discount allowed to Los Angeles International Fern Society on bulk purchase of copies.)

BPS Booksales has a loan of £250.00 from the Society to provide working funds.

FINANCIAL STATEMENT AS AT 31 DECEMBER 1982

ORDINARY ACCOUNT

Income

1981			
£3861.11	Subscriptions		£4045.60
	Sundries		10.99
	Sales –		
201.50	Gazettes, Bulletins	£149.00	
150.00	Booksales (Profits)	150.00	
	Offprints	15.50	314.50
4.17	Interest on Deposit Accounts		82.80
			£4453.89

Expenditure

729.00	Metloc A/C Bulletin Vol 2 No 4	870.00
1120.00	Metloc A/C Gazette Vol 12 Pt 4	1190.00
281.67	Printing and Stationery	202.07
713.79	Administrative Costs and Postage	767.23
21.10	Subscriptions to Societies	32.05
28.50	Meetings' Costs	26.00
		£3087.35
1152.72	Excess of Income over Expenditure	1366.54
865.98	Balance Carried Forward from 1981	2019.70
	Balance Carried Forward	£3385.25

PUBLICATIONS ACCOUNT

	Balance Carried Forward from 1981	163.86
	Sales –	
535.15	Hardy Ferns	363.00
163.86	Balance Carried Forward to 1983	£526.86

GREENFIELD FUND

Balance Carried Forward from 1981	£1457.97
Interest	130.45
Balance Carried Forward	£1588.42

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MEETINGS 1983

THE 80th ANNUAL GENERAL MEETING — 19 FEBRUARY 1983

The 80th Annual General Meeting was held at the University of Aston in Birmingham on Saturday 19th February 1983 at 2.45 p.m. with 47 members and guests in attendance. The President, A C Jermy, BSc, was in the Chair.

Honorary General Secretary's Report: In spite of an otherwise successful year with field and indoor meetings well attended, this Society is still faced with one or two problems.

A report from Philip Coke, the Membership Secretary, provides the following data on membership up to the 31 December 1982. Full members: 363, Subscribers: 92, Student Members: 15, Honorary members: 10, and members not receiving the 'Fern Gazette': 73, giving a total of 553, of which 301 are overseas members.

Mr Coke points out that our total membership in 1979 was 578 and that there appears to be an overall loss of 73 British members. He suggests that we are not doing enough for British members.

Throughout the past year, the Officers and Committee members have discussed at length, the recent problems concerning the late appearance of the 'Fern Gazette' and they are aware that members received nothing from the Society for most of the year. They are determined that members will receive their publications at the correct time. This is normally mid-summer for the 'Fern Gazette' and December for the 'Bulletin'.

Members living in Scotland, the North-West, the South-West and the West Midlands are unlikely to feel forgotten, these areas are fortunate enough to enjoy their own regional programmes and reports in the 1982 'Bulletin' indicate how successful they have been. Regrettably, other areas remain somewhat neglected but it must be pointed out that this is largely due to a lack of motivation by members in those areas. The Society would be pleased to see the further development of regional meetings and I will be very pleased to help in any way I can.

During August 1982, Miss Kathryn Kavanagh took over the duties of Meetings Secretary and was immediately pitched into formulating the 1983 meetings programme and we congratulate her on accomplishing this task in good time.

1982 also saw the formation of a conservation Sub-Committee briefed to research and locate fern cultivars which we are in danger of losing. Members views on this subject would be welcome.

The Spore exchange list continues to present a varied collection of spores, both hardy and exotic, due to the dedication of a very few members who go to the trouble of harvesting their spores and sending them on to the organiser, Richard Cartwright who is extremely grateful for their help. Without them, of course, there would be no list and some further support is required from members, particularly for spores of all British varieties and the more rare montane and mural species such as Woodsia. Some sources dry up after a while so new suppliers are always needed. In the 1981/82 list, one hundred and ten requests were received and some two thousand packets were posted worldwide. Greater use is being made of the list by overseas botanic gardens and universities, which is most gratifying.

The report was approved and Mr Busby thanked the meeting.

Honorary Treasurer's Report: Dr Thomas circulated a copy of the Society's balance sheet and gave a verbal report outlining the Society's finances for 1982. He was pleased to report that the sound finances continued to improve and remarked on the fact that only three years ago, the Society faced the prospect of going into debt. The more stable position was largely due to the low increase in printing costs, coupled with the recent steadily reduced rate of inflation.

However, as there could be more difficult times ahead, especially if inflation begins to climb again, he proposed that he should slowly build up the Society's reserves.

BPS Booksales: Dr Thomas circulated a balance sheet for the Booksales which was prepared by J W Dyce.

The reports and balance sheets were approved and Dr Thomas thanked the meeting.

Fern Gazette Editor's Report: Dr Page was pleased to report that the hold-ups which have characterised recent issues of the Fern Gazette had now been largely resolved and that the 1983 issue should be published on time.

Dr Page expressed his commitment to ensure that the Fern Gazette contains a variety of articles of interest to the widest number of members. He reported no shortage of good copy for the 1983 issue with some in hand for 1984. In reply to some criticism concerning the shortage of British material in the Fern Gazette, Dr Page pointed out that he can only put in what he receives, and he is very anxious to encourage British Members to send in articles and field notes, and to help in any way he can.

Dr Page concluded his report with the observation that it is overseas members who seem to be the most active in producing articles for the Fern Gazette.

Bulletin Editor's Report: Mr Rickard began his report with an apology for the number of errors that had crept into the 1982 Bulletin, which was partly caused by the late arrival of some copy.

Mr Rickard reminded members that the winter and early spring is a slow time for the gardener and that the long, dark evenings provide a good time for members to prepare articles, notes, etc. for the Bulletin. He is anxious for members to keep the articles, notes, wants and suggestions coming in and reminds them that the deadline for such material is 30th June.

Mr Rickard ended his report by asking members to submit good black and white photographs to illustrate their notes and articles wherever possible.

Both reports were approved and Dr Page and Mr Rickard thanked the meeting.

Election of Officers and Committee: Both the Honorary Secretary and the Honorary Treasurer agreed to stand for another year and were duly elected with thanks.

Due to M H Rickard's move from Committee to Editor of the Bulletin in 1979, Dr Mary Gibby was the sole, longest serving member of the Committee to retire this year. One nomination had been received for this Committee vacancy. Ms Josephine Camus (Prop. by Dr M Gibby, seconded by J A Crabbe) has accepted the nomination and was duly elected a member of the Committee.

Mr J Moulton had conveyed to the Committee his desire to retire from the post of joint Auditor. The President expressed his thanks to the meeting for all the years of service given by Mr Moulton and instructed the Secretary to write and convey the Society's thanks.

Mr J Cramp, proposed by Dr B A Thomas, seconded by A R Busby, was re-elected Auditor for a further year. It was proposed by A R Busby, seconded by N A Hall that Dr N Hards be elected as the second Auditor.

A R Busby

INDOOR MEETINGS

The Spring Indoor Meeting was held on the 19 February at the University of Aston, immediately after the AGM.

As the AGM had run on for rather a long time, the meeting began with light refreshments kindly provided by Margaret Busby, Brenda Smith and Margaret and John Collins. Over cups of tea there was time to admire the collections of dried fern fronds illustrating many fern varieties raised by Ray and Rita Coughlin, and the continuous show of members' colour-slides organised by Alan Ogden, BPS Booksales were busy on this occasion manned by Ray and Rita Coughlin in Jimmy Dyce's absence.

The main item on the programme was an illustrated talk entitled "The Distribution of Ferns in the West Midland Conurbation", given by our secretary, Matt Busby. Matt demonstrated that while the fern flora is not particularly rich, it is certainly not without interest. Frequent references to some species as relics of the old Birmingham Heath, which disappeared long ago under the developing city, and others as obvious colonists were well illustrated by references to localities along the banks of the city's numerous canals. The whole talk was liberally sprinkled with distribution maps.

I was pleased to hear that the Mountain Fern, *Oreopteris limbosperma*, still lingers along one tract of canal where it bisects what at one time was the old 'Heath'. The highlight must have been the speaker's obvious delight at the discovery of a few plants of the Rustyback Fern, *Asplenium ceterach,* for the first time in the region after months and months of searches uncovering only the more common ferns.

The afternoon ended with the Secretary leading a party around his Pteridophyte collection at the University.

Moving the AGM and the Spring Indoor Meeting to Birmingham proved a very happy experiment. The turn-out of 47 members and guests coupled with the excellent facilities at Aston University combined to make the meeting very successful.

Martin Rickard

The Autumn Indoor Meeting was held on the 22nd October at the British Museum (Natural History), Cromwell Road, London. After welcoming the 30 members attending, the President introduced Mr Duncan Donald, who is employed by the Royal Horticultural Society as a full time member of the National Council for the Conservation of Plants and Gardens. Mr Donald outlined the work of the NCCPG and posed many questions that concern those who are keen to conserve and save the plants and garden varieties that we are likely to lose, due to difficulty of cultivation, scarcity, or simply lack of interest.

He stressed the importance of keen individuals and specialist societies recognising those varieties under threat and letting the NCCPG know where the dangers exist.

It was pleasing to hear that due to the efforts of the NCCPG in circulating the names of plants that appeared to be absent from cultivation, several plants had been discovered and were now secure.

Mr Donald also spoke of the importance of National Collections of different groups and how such collections can safeguard rare and interesting plants. His final remarks touched on our garden ferns and the plans in hand for National Collections of various genera.

It is hoped that our Society can play its part in this work especially now that we have our own Conservation Sub-committee. Although Mr Donald's remarks were illustrated with flowering plants, his points are very applicable to our ferns and surely no group of garden plants has lost as many varieties as we have over the last fifty years or so.

Thanks are due to Kathryn Kavanagh and Alison Paul for organising the refreshments during the meeting.

A R Busby

DAY MEETINGS

Chelsea Physic Garden — 14 May — A dry sunny spring day greeted 46 members and guests attending the Chelsea Physic Garden meeting led by Dr Mary Gibby. Mary explained that the garden, founded by the Society of Apothecaries, has been the focus of botanical teaching and research since 1673. In 1899, it became the responsibility of the City Parochial Foundation. One of its many famous curators was Thomas Moore, a name well-known to present day Pteridologists. His herbarium is still at the gardens.

The members gathered inside to hear Mary Gibby demonstrate her methods for sowing fern spores, a task she frequently carries out in her work on the hybridisation of *Dryopteris spp.* To ensure freedom from any rogue spores that may be adhering to the surface of the selected fertile frond, the frond is gently washed under a cold water tap. It is then damp dried on tissue paper and pressed between sheets of paper while the spores are released. After a few days, the spores are collected ready for sowing and the frond is carefully labelled and pressed for future reference.

Using clay pots and a mixture of 2 parts peat, 1 part loam and 1 part sand, passed through a ¼" seive, the prepared pots are sterilised in a domestic pressure cooker. After the pots have cooled, the spores are sown on the surface of the compost and the pots are sealed in a polythene bag. Subsequent treatment involves the selection of mature prothalli and the extraction of male antheroizoids to fertilise selected species. Features of a fern's life-cycle were vividly displayed with a micrograph video-film which clearly showed the motile male antherozoids swimming across the field of view.

Mary ended her talk with reference to her recent fern hunting trip to Costa Rica. A few colour-slides illustrated a field trip to discover the whereabouts of a presumed new genus called *Costaricia spp.*, proved a very interesting anecdote. No doubt we shall hear more about this in a future publication.

Afterwards members took advantage of the bright sunny weather to walk around the garden and greenhouses for half an hour or so, before re-assembling for a Wine and Cheese Soiree. 38 members remained behind to take advantage of this social gathering organised by Kathryn Kavanagh, it proved to be a very pleasant and relaxed way to end what had been an excellent meeting.

Thanks are due to Mary Gibby for giving us such an interesting insight to her work, to Kathryn Kavanagh for giving us the opportunity to enjoy good company over a glass of wine and various tempting tit-bits, and to Mr James Compton and his staff for allowing us the freedom of the garden.

A R Busby

Oxford Botanic Garden Meeting – 9 July – It was on a very hot and wind-less day that 33 members and guests gathered for the meeting at Oxford Botanic Garden and it was with great pleasure that we were able to express a very warm welcome to Mrs Judith Jones of Seattle, U.S.A., who was staying with Jimmy Dyce for three weeks and was able to join us at Oxford.

We began our tour of the garden by looking at the fern border along the greenhouse wall. This border contains most of the ferns from the collection of the late Theo. Dyer (1895–1979). Although his ferns were moved to Oxford during the summer of 1979 and had taken to their new home rather slowly, the wet spring this year had finally settled them in and they were at their best. Members were able to see a wide selection of cultivars of *Dryopteris, Polystichum, Athyrium* and *Asplenium scolopendrium.* Members were particularly impressed with a fine stand of *Equisetum telmateia,* (The Great Horsetail), that dominated the end of the fern border without, apparently, threatening the rest of the inhabitants. Ferns were also in evidence in other parts of the garden. *Cystopteris fragilis* in a sink garden, *Polypodiums* near the rockery and a fine stand of *Osmunda regalis* by the pool. It was with some reluctance that several members braved the close heat of the greenhouses to view the collection of indoor ferns.

It was with great pleasure that members accepted Mrs Doreen Holly's kind invitation to visit her home and garden for refreshments. Mr and Mrs Holly's garden provided us with ample space to sit down and cool off with various cakes and drinks.

After recovering from the heat of the day, members were able to view their garden which featured herbaceous borders and alpine beds.

It was particularly pleasing to see several new faces amongst the members present. I trust that they enjoyed their day with us and that we can look forward to seeing them again at other meetings.

On behalf of everyone present at the meeting, may I express their thanks to Mr and Mrs Holly for their kind hospitality.

A R Busby

Richard and Angela Rush's Open Day – 24 September – Eighteen members and guests accepted Richard and Angela's kind invitation to visit their garden. The main attraction was Richard's collection of foreign hardy ferns giving most of us an opportunity to see new ferns that may prove suitable for British gardens.

Insufficient space prevents me from naming every new species that we met in their garden but it was a great joy to find all the ferns labelled.

An interesting feature was Richard's idea to dig out the ground to form sunken paths with the soil banked up on either side of the path. On these banks, ferns and alpines were planted to good effect. It was on such a bank that a fine plant of *Cheilanthes lanosa* caught my eye.

Richard has recently built a leanto greenhouse alongside his home where most of his spore sowings and young plants were kept. Richard relies heavily on his correspondence with members overseas for his spores and is really leading the way with his researches on finding new fern species that might prove suitable for British gardens.

Members browsed around the garden, occasionally avoiding the odd short shower. They were provided with coffee and cakes and the opportunity to acquire a number of young ferns for their own gardens.

Richard and Angela are to be congratulated for providing members with an interesting and rewarding afternoon and I thank them on behalf of everyone who was there.

A R Busby

REGIONAL MEETINGS

WEST MIDLANDS — 'Welcome to Spring' Flower Show — By the kind invitation of the Solihull Horticultural Society, our Society was able to exhibit a selection of hardy and indoor ferns together with a display of spore germination and Society literature. Entries for the competitive classes for potted ferns were considerably swelled this year with the welcome participation of fern society members. Results of class 128 One Pot Fern were: 1st prize to J H Dearn for a *Davallia feejeensis,* 2nd prize to Mrs B Smith for an *Adiantum raddianum* cultivar and 3rd prize to Mrs N Jenkins for a small *Nephrolepis exaltata.* There were eight entries altogether.

Ray Smith gained a third prize in class 133 Foliage Plant arrangement with an entry containing an *A. raddianum* cv 'Lady Geneva' an *A. raddianum* and a *Pteris cretica.* There were six entries. It is hoped that more local members will follow this lead and exhibit their ferns in this and other shows. Apart from the benefits of improving the cultivation of ferns and the enjoyment of the competitive spirit, it is hoped that it will also result in creating a greater public awareness of the attraction of growing ferns.

My thanks to Mr & Mrs C F Clay, Richard Lamb, John & Margaret Collins and Mr & Mrs Bernard Mitchell for taking the trouble to visit our stand and a special thank you to Ray Smith and Alan Ogden for spending time with me on the stand.

Alan and Valerie Ogden's Open Day — Sunday, 3rd July — 22 members and guests accepted Alan and Valerie's kind invitation to visit their garden. Blessed with hot sunny weather, the party was able to stroll at their leisure and enjoy the fern and herbaceous borders. Alan's ever expanding collection of ferns looked in fine fettle. Since our last visit in 1979, Alan has added new fern borders and his collection of indoor ferns has now outgrown his greenhouse.

Several members brought along spare plants so that others could take something new home to add to their collections.

On behalf of everyone who accepted Alan and Valerie's kind invitation, may I express our most sincere thanks to them for their generous hospitality.

Leicester University Botanic Garden — I have come to the conclusion that, as dog owners are reputed to look like their dogs, so fern growers prefer to gather in cool, moist and shady situations. On Sunday, 14 August, 21 members and guests attended the regional meeting at Leicester Botanic Garden. The weather again proved more suitable for mad dogs and Englishmen rather than english fern growers, and the meeting toured the garden led by Miss Pauline Jenks, a senior member of the gardening staff.

Although Leicester has a rather modest collection of hardy ferns including *Osmunda, Athyrium, Polystichum setiferum* with one or two 'Acutilobum' forms and the usual *Dryopteris,* including *D. villarii,* there were very few garden cultivars to be seen. However, it was pleasing to be told that they are anxious to improve their collection and are always pleased to receive named ferns for the garden. The tour continued with members flopping out under any available shade.

The greenhouses proved very interesting and worthwhile with several species of *Adiantum, Asplenium, Davallia* and *Pteris* along with other indoor ferns and *Selaginellas.* I was pleased to receive a climbing fern that I had not seen before. Prof. R E Holttum at Kew kindly put a name to it for me. It is *Pellaea ovata* (Desv), a native of Mexico. I have since found it illustrated as *Platyloma flexuosa* on page 71 of Lowe's FERNS; British and Exotic, Vol. 3. I find it a most attractive addition to my fern collection.

Thanks are due to Prof. Holttum for kindly identifiying the *Pellaea,* to Mr B V Frankland, Garden Superintendent for kindly arranging our visit and to Miss Pauline Jenks for guiding us around the garden in such a knowledgeable and friendly way.

Matt and Margaret's Illustrated Wine and Cheese Party – On the evening of Thursday, October 20, 21 members and guests gathered at the University of Aston for Matt and Margaret Busby's evening of local member's colour slides, enjoyed with a glass of wine and a selection of cheeses.

It provided an opportunity for members to show photographs taken over the last year, to display ferns and 'ferny' items and to discuss the triumphs and tragedies of the past fern growing season.

Clive Brotherton brought along several Maidenhair fern varieties that he had grown from spores, which included a fine 'imbricate' *Adiantum capillus-veneris.*

Richard Lamb displayed a large pan of *Anogramma leptophylla* plants grown from spores, and kindly distributed surplus plants of *Cheilanthes fragrans* also grown from spores, while Jenny Lamb won the approval of everybody with her quiche lorraine, consumed to everyones' satisfaction.

Brenda Smith provided the 'buzz' of the evening with framed embroideries of ferns; a Maidenhair fern, a Hartstongue fern and a superbly crafted Rustyback fern.

Shortly before the meeting broke up, a short discussion considered ideas for next year's regional meetings.

Thanks are due to Margaret Busby for her support and to Martin and Matthew Busby for their enthusiastic assistance throughout the evening.

A R Busby

SOUTH WEST – Philip and Mary Coke's Open Day – A large party of 19 members and friends met on the 17 July at Philip and Mary's house, on a torrid and oppressive day, the temperature was in the nineties, yet there were only a few glimpses of sun during the afternoon. Despite the heat, Philip's garden was in its customary immaculate splendour, and gardeners and botanists spent an enervating but exciting afternoon admiring and discussing various species and varieties of ferns. An outstanding plant was a fine *Dryopteris erythrosora* with fronds over a foot high still retaining their distinctive red colour. (This plant appears to be variable regarding the colour of the new fronds – some change to green quickly, whilst others, such as Philip's form, retain their bronze colour for some time – is this due to age of the plant, situation or type of soil?). We also admired a fine plant of *Dryopteris wallichiana,* the black-fringed stems arising in a stately shuttlecock some four feet high.

A new bed of *Asplenium scolopendrium* sporlings caught member's attention; varieties of a muricate crested form shewed splendid variegation. This characteristic develops to perfection in the Coke's garden, (never in one's own!). What soil additive – or deficiency – is responsible for this illusive and desirable variation?

Philip has a beautiful display of *Adiantums* housed in cool conditions; also under cover, some earthenware pans of interesting miniature gardens planted with *Adiantum reniforme,* a silver-backed *Pellaea* and more small forms of *Asplenium scolopendrium.* All present benefited from Philip's knowledge and generosity, newer members acquiring fine mature plants; many ferns were also exchanged from those brought to the meeting by members and friends. Thanks again to Philip and Mary for their hospitality and an enjoyable and interesting day.

Dr Yoxall's afternoon – Dr Harry Yoxall invited members, on the 31 August, to his recently acquired house and garden set on the Blackdown Hills at Pitminster, near Taunton. Only the Potts family attended this meeting but we examined the site of a proposed fern garden with much interest. Dr Yoxall possesses on the edge of his garden an enviable site for ferns, consisting of a steep wooded valley divided by a broad stream. The vegetation when we saw it on a hot thundery afternoon, was of tropical luxuriance, the stream steaming through gloom laden canopies of foliage. All the resident ferns, *Asplenium scolopendrium, Polystichum setiferum* and *Dryopteris filix-mas* were growing to perfection. Dr Yoxall assures me that he does not intend to move from this house; we wish him well with this superb site and unenviable years of labour, clearing, terracing and path laying, so that future members are not required to wade through the stream to admire his fern garden!

Shapwick Nature Reserve – On the 14 August a party of 15 members and friends met at the Pott's house for a shady garden lunch, in intense heat. After looking at the garden and exchanging a few plants, we visited Shapwick Nature Reserve on the Somerset Levels. This reserve belongs to the Nature Conservancy Council and is a prime example of the much publicised peat/marshland habitat slowly being starved of moisture by surrounding peat extraction and agricultural drainage. Water is now pumped from surrounding ditches into the reserve, in an effort to maintain the water table and so ensure the survival of the indigenous flora.

We spent some time looking at many large stretches of the Marsh Fern, *Thelypteris palustris,* growing in marshy woodland pools. The fronds were 18 inches high and of a brilliant green against the overhanging vegetation. On entering the birch glades we were pleased to see some fine stands of *Osmunda regalis,* the Royal Fern, growing to five feet, but none below that stature or any sign of regeneration, (though plenty of *Dryopteris* sporelings were growing on the sides of peat ditches). Many plants of *Dryopteris carthusiana,* the Narrow Buckler Fern and *D. dilatata,* the Broad Buckler Fern, covered the woodland floor allowing us to compare these similar species. Of the six ferns seen on this walk, three were of the less common species and growing in abundance, a tribute to those conservationists who struggle to maintain these few remaining oases in the face of growing commercialism.

Mendip Hills Walk — The last meeting of the season was held in conjunction with the Somerset Trust for Nature Conservation on the 18 September. The only member from the BPS was Philip Coke, who, along with Ron Payne of the Bristol Naturalists, braved wet weather, together with some 35 members from the Somerset Trust. We visited Rowberrow Forest and Blackdown set in the midst of the Mendip Hills; this area consists of acid soil covering dolomitic conglomerate so the fern flora boasts a few rarities for the Mendip area. Growing in the Forestry Commission woodland were *Dryopteris filix-mas, D. dilatata* and *D. affinis* (the later mostly subspecies *borreri*), *Athyrium filix-femina* and *Blechnum spicant. Oreopteris limbosperma* has been sited in this wood but would have required a considerable detour.

Growing on limestone walls were the more habitual ferns for this area, *Polypodium interjectum, Asplenium trichomanes, A. scolopendrium* and *Cystopteris fragilis.* All the ferns were in fine condition after two weeks of torrential rain; we were fortunate in having a sunny afternoon which culminated at the Pott's for tea.

Mary Potts

SCOTLAND — Isle of Rhum, 2-9 July 1983. This week-long excursion was organised by the Scottish Group under the leadership of Chris Page, to explore the island of Rhum and carry out a pteridological survey. In order to keep the party small enough to be transportable, with gear, in one landrover on the island, the number of participants had to be limited to six plus the leader, which included nearly all the Scottish and northern English members.

We sailed from Mallaig in a small boat via the island of Eigg, and then had to be transferred with luggage to an even smaller boat at sea, to be able to land on the island. After a stormy crossing, the party were glad to make landfall.

Rhum was acquired by the Nature Conservancy Council and declared a National Nature Reserve in 1957, and our accommodation and transport on the island was provided by the NCC. We stayed at the magnificent Kinloch Castle as the sole tenants for most of the week.

Rhum is one of the largest of the Inner Hebridean islands, lying about 8 miles south of Skye and some 15 miles west of the mainland coast of the Morar Peninsula. The almost round island is about 8½ miles across at its broadest point, but is extremely wild and mountainous. There are three peaks over 2500 ft, whilst lesser, but still highly impressive, angular mountains dominate much of the rest of the island, with Old Norse names such as Askival, Barkeval, Hallival and Orval. There are a very few roads that cross the island, and these passable only by landrover.

Ecologically the island is highly diverse, and the curious mixture of acidic and ultra-basic rocks are one of the features which make it of considerable pteridological ecological interest. With the kind aid of the Nature Conservancy, in dropping us off each day by landrover and collecting us at pre-arranged spots later, we were able to make daily round trecks and thereby covered much of the area of the island during the week.

This is not the place to go into a long pteridological account, as this will be the subject of a full report to the NCC and of an article to appear in a future Fern Gazette. However, as might well be guessed from the ultra-basic rock formations, we found some very interesting *Asplenium*, at present the source of further study, whilst we added at least one new pteridophyte to the Rhum flora every day. There were at least four hybrid horsetails found, thanks to our sharp-eyed team, including *E. x trachyodon, E. x litorale, E. x rothmaleri* and *E. x dycei,* as well as some interesting communities of mountain and coastal species growing under particularly unusual conditions.

The week was much enjoyed by all the Scottish members, whose company I also much enjoyed, and we all wish to extend our thanks to the NCC for their help and hospitality on the island.

C N Page

Roslin Glen Wildlife Reserve Midlothian – 20 August. Because of the small number of members in Scotland, the organisation of Scottish 'regional' meetings has proved difficult and the number of people writing in for details of such meetings has been minimal (one, to be precise!). It was felt therefore that the best way forward might be through joint meetings with other societies. So, on 20 August, five members of the S.P.S. met up with twelve members of the Scottish Wildlife Trust, Lothian Branch, to explore and record the ferns of the S.W.T. Wildlife Reserve at Roslin Glen, south of Edinburgh. Dr Chris Page was the leader and John Crichton of the S.W.T. knowledgeably led us over the local terrain. The dry weather mercifully made the scrambling involved not too unpleasant!

On a wooded path south-west of Roslin Chapel, a fine stand of the Great Horsetail (*Equisetum telmateia*), towards the north of its range, was admired, while a small plant of *Dryopteris expansa,* recognised by its pale scales and upright rhizome, provoked much discussion and is probably a new record for this area. Within the reserve itself, which is predominantly oakwood, on the south bank of the River North Esk, most of the species typical of acid woodland were seen; Broad Buckler fern (*Dryopteris dilatata*) and the Male Fern and Scaly Male Fern (*D. filix-mas* and *D. affinis* respectively) and probably the hybrid between them *D. x tavelii.* Also seen were Lady Fern (*Athyrium filix-femina*), Hard Fern (*Blechnum spicant*), Bracken (*Pteridium aquilinum*) and the Wood Horsetail (*Equisetum sylvaticum*).

A patch of *Polypodium sp.* with few sori was thought to be a mixture of Common Polypody (*P. vulgare*) and the hybrid (*P. x mantoniae*), and it was interesting to see it being eaten by an unidentified green lepidopteran caterpillar. The Oak Fern (*Gymnocarpium dryopteris*) was found in deep soil banks, but curiously no Beech Fern (*Phegopteris connectilis*) was detected. This information will be incorporated into the management plan of the reserve, so it was a worthwhile exercise as well as a useful introduction to members of both societies who were less experienced in ferns.

Michael Scott

NORTH-WEST ENGLAND. No meetings were organised in 1983.

WEEKEND MEETINGS

Northumberland – 27/29 May.
Northumberland is a county of contrasts, from the bleak upland moorlands of the Cheviot Hills and the vast man-made forests of Kielder, to the rolling hillsides cut by narrow wooded river valleys such as those of the Wandsbeck and Coquet, and the remote coastline of cliffs, sand-dunes and islands. Scattered over this landscape are the many artifacts of man: from mining villages and abandoned railway tracks, to the very numerous castles and abbey ruins, not to mention large hunks of Hadrian's Wall. Most of these structures seem to have been built to keep the Scots from the English, the English from Danes, or just the Geordies from themselves. This must have worked because today Northumberland remains a remote and beautiful county, with a rich and varied wildlife as well as an unusual pteridophyte flora, not abundant in ferns, but particularly rich in horsetails.

It was a personal pleasure for me to renew my acquaintance with many old haunts in this county of fifteen to twenty years ago, and to lead this excursion jointly with Dr Trevor Walker, who was then my University tutor and supervisor, and ever since a close friend. It was perhaps in retribution for not having run such a meeting here before that the weather threw at us over the whole weekend most of the inclement elements it could muster, with steady persistent drizzle turning at times to heavier or near-freezing driving rain. With an exceptionally wet season already this year the rivers were brimming full and the many small streams raging torrents.

Nevertheless, a brave contingent of members and friends from warmer climes further south travelling north met a small contingent from Scotland travelling south to make a total of twenty four in the party for the whole weekend. With low cloud blanketing all the higher land, plans were organised to concentrate our excursions mainly in the lower-lying parts of the county.

Our first day took us to explore the south Northumberland coast, which is essentially cliffy, and the environs around it. After briefly looking at *Asplenium trichomanes* and *A. ruta-muraria* on the walls of Alnwick Priory, the main feature of the morning was to explore the cliffs and Cullernose Point, to look for *Asplenium marinum.* Despite the numbing wind and rain on the cliff-top path, at the foot of the cliffs we felt a little more sheltered, and the fern did not disappoint us. It was here in quantity. There were old and magnificently large plants with cascading fronds eight to nine inches (over 20 cm) long mixed with many smaller ones pressed deep into rock fissures, and small, re-establishing youngsters. Although this year's fronds had not started to grow, last year's fronds, still fully-fertile with bulging, largely-shed sori, were still entirely green. The *Asplenium* thrived best beneath slight overhangs of rock, where they were protected from the rain, but received some sea-spray, and accompanying them were numerous small spiders and exceptionally large specimens of the primitive wingless insect *Petrobius maritimus* which seems to be frequent with this fern in most locations. The headland is unusual in that it is produced by an outcrop of hard quartz-dolerite rock of the Great Whin Sill lying directly upon the country rock of shales and thinly-bedded sandstones, into which it was intruded. Most of the *Asplenium* plants were growing on the sandstone, although at least one plant had succeeded in establishing directly on the dolerite.

Further along the cliffs, on slumping boulder-clay banks, we found good plants also of *Athyrium filix-femina, Dryopteris dilatata, D. affinis* subsp. *borreri, D. filix-mas* and *Equisetum arvense.*

After lunch we explored abandoned quarry workings, now a nature reserve near Craster. A nearby wall had a dense population of *Asplenium ruta-muraria.* The now partly overgrown quarry was also in dolerite rock, and produced some very fine clumps of *Polypodium interjectum* around the rock faces, whilst in the establishing woodland in the old quarry tailings were abundant clumps of *Dryopteris filix-mas* mixed with *D. affinis* subsp. *borreri,* the now-expanding croziers of each contrasting markedly with the other in their grey-green and golden-green colours respectively. The party had reduced to a handful by the time we got back on to the cliff-tops, the rest taking refuge from the elements back in the cars. Those who braved the cliffs saw a rewarding view of Dunstanburgh Castle looming eerily through the mist and rain, whilst in the grass under foot, *Ophioglossum vulgatum,* previously recorded here, was searched for but not found.

By this time we were all fairly desperate for somewhere sheltered, and so rounded-off the day by visiting a wooded garden at Howick, where amongst luxuriant plantings of rhododendrons, we noticed the introduced Ostrich fern (*Matteuccia struthiopteris*), a couple of large carpets of *Blechnum penna-marina* thriving in this environment, and cultivated *Osmunda regalis*.

Saturday also started wet, and continued that way nearly all day. We met up at Plessy Woods south of Morpeth. The advantage of seeing such woods at this time of year is that they were in their full vernal aspect, before the leafy canopy above had become too dense, and the fleshy fronds of many *Dryopteris* appeared through carpets of spring-flowering herbaceous vegetation. This woodland is typical of that of many of the Northumberland 'denes', or steep wooded river valleys, running mostly east-west, with the rivers (here the River Blyth) cut-down through surrounding rock as the land has slowly risen about them. The deep cut of the river has removed the blanketing boulder clay, and the rock strata exposed are fairly level-bedded sedimentary strata of Carboniferous age, made up mostly of a mixture of shales, coals, sandstones, calcareous sandstones and thin limestones. In consequence, there is much local variation in these valleys of rock type, with enclaves of base-loving, neutral and acid-loving species in sometimes confusingly close proximity. The odd extremely basic patches were marked by the occurrence of *Polystichum aculeatum*. By contrast, the odd extremely acidic patches were marked by *Blechnum spicant* along deep banks by the river, usually amongst dense growth of Woodrush (*Luzula sylvatica*). Much of the woodland, however, must have been intermediate between these extremes. Large patches of *Athyrium filix-femina* and *Dryopteris dilatata*, often with *Luzula sylvatica*, marked where the soils were probably slightly acidic, and especially where there was a moving water table near the surface of the ground. *Dryopteris affinis* subsp. *borreri* replaced these species in ground probably of a similar acidity, but better drained. Very much of the woodland soil was, however, clearly of much more neutral to slightly basic type, as indicated by the species present. Here also *D. affinis* subsp. *borreri* occurred, but much more frequently it was replaced by extensive patches of *D. filix-mas*, with a rich undergrowth of woodland herbs, such as Bluebell (*Hyacinthoides nonscriptus*), Wood-sorrel (*Oxalis acetosella*), Crosswort (*Galium cruciata*), Dogs Mercury (*Mercurialis perennis*), Wild Garlic (*Allium ursinum*), Cow-wheat (*Melampyrum pratense*), Wood Anemone (*Anemone nemorosa*) and Slender False-brome grass (*Brachypodium sylvaticum*). In moister, flushed spots, *Equisetum sylvaticum* occurred, associated with dense patches on which Lesser Celandine (*Ranunculus ficaria*), Pignut (*Conopodium majus*), Wood Avens (*Geum urbanum*) and small patches of Meadowsweet (*Filipendula ulmaria*) predominated. The permanently moist nature of some of the damper patches of the wood was indicated by attractive patches of Golden Saxifrage (*Chrysosplenium oppositifolium*).

Northumberland is, however, an exceptional county for horsetails, with all the British species present. With this in mind, in the afternoon, the rain eased slightly and we explored part of the River Wansbeck valley just west of the market town of Morpeth. Because the river here again cuts down through surrounding rock strata, the clay-and-rock banks carry abundant seepage lines of lime-rich water. This creates ideal habitats for horsetails, the species differing largely according to slope and whether the water is moving or stagnant. Four species occur here. One, which is confined to gravel fans along the immediate river edges, we were unfortunately unable to find, due to the very high level of the river above its normal level. This is *Equisetum hyemale*, and its main colony seemed to have been completely submerged by the floodwater. The others, however, occurred higher above the river, and were found in abundance, especially *Equisetum telmateia*. This is always a beautiful and often spectacular plant, and I think we were not disappointed. In most places its spring cone shoots had finished and died down, but we did find a few occasional late ones. Its vegetative shoots were, however, present in many places, with short branches now emerging, like small fir-trees or giant bottle brushes, with the characteristic ivory-white internodes to the main shoot, contrasting with the fresh green of the regular branch whorls and the brown of the sheath teeth. On better-drained banks, *Equisetum arvense* became abundant, whilst where the water collected and became more stagnant in flatter moist patches, *Equisetum palustre* came in. The banks were partly overgrown with shrubby vegetation in which hazel (*Corylus avellana*) often dominated, whilst among the ground vegetation, Meadowsweet (*Filipendula ulmaria*) was predominant with a wide variety of other herbs, including the large leaves of Butterbur (*Petasites hybridus*) and Hemlock Water Dropwort (*Oenanthe crocata*). In better-drained spots nearby, wild arum (*Arum maculatum*) was pushing-up its slender spathes, whilst the presence of Twayblade (*Listera ovata*) suggested this to be a long-undisturbed strip of riverine woodland.

Elsewhere along these Northumberland denes, *Equisetum pratense* also grows, at least one colony known to have been much the same at least a century ago. On the way back, I also collected a few shoots of *Equisetum fluviatile* and *E.* x *litorale,* and in the evening we held a short discussion on the key characters by which the species could most readily be separated in the field, including the Page "squeeze-test" for *Equisetum* x *litorale*!

On Sunday we ventured to the north Northumberland coast, where we spent the morning and early part of the afternoon on the island of Lindisfarne (Holy Island). This is a low island reached by a causeway at low tide. Its main interest, beside the castle and monastery ruins, is its sand-dune system. The sand is calcareous, and on the moist dune slacks, there is a well established vegetation rich in rare species. The whole area is a nature reserve. We searched the dune slacks (mostly flooded with several inches of rainwater), and were greatly impressed by the numbers of orchids to be seen in these slacks, especially the patches of the green-flowered Coral-root (*Corallorhiza trifida*), in full bloom. This was surprisingly frequent for such a rare plant and caught the attention of many of our cameras (for the rain had at last just stopped). With the slacks mostly flooded, hunting for the pteridophytes we expected to see involved mostly wading and peering under water!

It took the sharp eyes of one of our Scottish lady members to first spot *Selaginella selaginoides,* forming sometimes quite extensive cushions, with stronger shoots already turned upwards to start their growth into cones. It is remarkable how much growth this species manages to make during the winter months. We also found *Equisetum arvense* and *E. palustre* and eventually, in only one slack, *Equisetum variegatum,* which is one of the plants for which we had been particularly looking. It is interesting to see *Equisetum variegatum* and *Selaginella selaginoides* growing at sea-level in this habitat, when we so often think of them as alpines. Both share this alpine-coastal type of ecology, each seeking calcareous, often sandy habitats, which are not densely vegetated with rank other vegetation nor shaded by tree over-growth. We did not find the other two plants which we might have – *Botrychium lunaria* and *Ophioglossum vulgatum,* before we had to return across the causeway before the incoming tide once again turned the area into an island. A few of the party had, however, found time to make a quick trip to the monastery ruins, where they reported *Asplenium ruta-muraria* and *A. adiantum-nigrum* together with *Polypodium vulgare* growing on walls, and *Phyllitis scolopendrium* with long fronds clothing the inside of the monastery well!

The afternoon's main port of call was to Scremerston, a coastal site a few miles south of Berwick-upon-Tweed, where old lime kilns had helped to make a particularly calcareous patch of pasture on low cliff-tops. We had hoped to find *Ophioglossum vulgatum* here. There were very extensive patches of Cowslip (*Primula veris*), and the habitat looked hopeful, but in the teeth of renewed driving rain, we had to retreat to the cars once again without finding it. To judge by the state of the *Equisetum arvense* still in full cone more than a month after its normal time, the season was clearly an exceptionally late one this year here, as almost everywhere else, and it is likely that the *Ophioglossum,* if similarly far behind, was too small yet to spot.

The Edinburgh based part of the party headed northward from here, whilst those remaining visited an old quarry north of Rothbury to see *Equisetum fluviatile* and *Equisetum arvense* growing with their hybrid *E. x litorale.* The moist abandoned quarry walls also bore splendid specimens of *Oreopteris limbosperma* and *Dryopteris affinis.*

The Sunday evening we all assembled at the Coquet Vale Hotel for a change and said good-bye to those who were not coming on to the Botanic Gardens at Newcastle. The following day we met at the gardens at 11.00 a.m. and walked around all the beds and then the greenhouse. Notable plants were the *Equisetum giganteum* with its inflated internodes, very scaly *Elaphoglossum crinitum, Aglamorpha sp.* and polypodies galore. We also saw gingers (*Hedychium alpinia*) and various tropical crop plants. It was a very interesting morning which ended at Trevor Walker's house where Molly Walker provided lunch for the hard-core that was left – about ten of us!

Despite the appalling weather of the whole weekend, we at least saw something of what Northumberland had to offer, and many resolved to come back to sample it again in fairer weather. As is typical for this county, a quick count of what we had seen showed that although we had found only about a dozen species of ferns all weekend, we had seen all but two species of British horsetails (and we only narrowly missed these!).

C N Page

Wye Valley – 30/31 July 1983. Christopher Page was to have led this meeting but unfortunately had to withdraw due to pressure of work, I therefore agreed to lead this excursion with the help of local botanists.

Some 20 people met outside the Forest House Hotel at Coleford at 0930 hours on Saturday morning and the party proceeded to the top of Cleddon Falls (a local Nature Reserve) and walked down through this beech-ash wood on sandstone and conglomerates. *Dryopteris affinis* subsp. *affinis* and subsp. *borreri* with *Blechnum spicant, Polypodium interjectum* and *P. vulgare* were found on the drier slopes. Nearer the waterfall, *Athyrium* occurred with *Asplenium scolopendrium,* and on the lower slopes *D. affinis* subsp. *robusta* and *Polystichum setiferum.*

We went on to lunch at Parkhouse, a nice little pub with home baked pies, en route passing *Oreopteris limbosperma* along the roadside and *Dryopteris carthusiana* and the hybrid *D. x deweveri* in a wet ditch.

After lunch we explored a wet valley in Ravensnest Wood (NGR 31/503999). Here the same species were seen again, in alder-sallow woodland, and in a roadside bank *Asplenium adiantum-nigrum, A. trichomanes* subsp. *quadrivalens* and *Polystichum aculeatum*, a rarity in these parts.

The afternoon was completed looking at Black Cliff (NGR 31/532984), a carboniferous limestone outcrop with underground caverns from which arose streams of cool air making some sink-holes quite chilling. Here the *Polystichums* were abundant and superb in stature, both species being present but *P. setiferum* being the commoner. *Dryopteris filix-mas* and *D. affinis* were also common, with very large clones of *Polypodium interjectum, P. vulgare* and the hybrid between the two, *P. x mantoniae.*

Sunday morning was somewhat misty and after again meeting at Coleford we drove to Bream where Honorary Wardens of the Gloucestershire Naturalists' Trust showed us

Pteris vittata, now reduced to two small plants on the overgrown slag-heap. This homage paid (a site discussion was held as to the management needed to preserve the plants, indeed it is a moral problem to decide whether we should maintain such artificial situations), we were taken on to Wimberry Slade, where in old mining shafts we saw *Gymnocarpium dryopteris* in one of its few locations in the area. *Polypodium* and *Blechnum* were both abundant in these sandstone chasms. After lunch we explored areas of open parkland with meandering streams on the east side of the Slade. Apart from interesting clones of *Dryopteris carthusiana* nothing new or of major importance was found.

A C Jermy

Rogate Field Centre, Near Liss, Hampshire, 19–21 August – A party of 11 met at the Centre on the Friday evening. After dinner the meeting began with an informal talk on ferns, their variation and how a study of chromosomes helped to elucidate their geneology and relationships. We were half way through this when, as a result of a violent thunderstorm, the lights went out – a regular event associated with such climatic extremes in Rogate apparently! Discussions continued in the dark for a bit but the candlelit atmosphere of the local hostelry seemed a better place for such intricate conversations!

Saturday dawned surprisingly fine and, joined by eight more people, we spent the morning at Borden Wood, where oak-hazel or chestnut woodland rose from the valley of a small stream up steep banks some 20-25m high. Rhododendron was frequently a dominant undershrub with occasionally holly. *Dryopteris dilatata* was dominant on the steep loamy soils and along one well-drained bluff under tall oaks four plants of *D. aemula* were found. Higher up the slope another population of about a dozen plants brightened the deep blue-green of the *D. dilatata* with their more yellow-green fronds. The lower slopes contained *Blechnum spicant,* and the wetter valley bottom, *D. carthusiana, D.* x *deweveri, D. affinis* ssp. *borreri, D. filix-mas* and *Athyrium filix-femina.*

After a pleasant pub lunch at the Keepers' Arms, we visited Coombe Hill, where, along a forest ride, several clones of *Lycopodium clavatum* were well-established although not sporing. The party then followed detailed directions given to the leader by Dr Francis Rose, a local botanist, to find *Equisetum sylvaticum* in a forestry conifer plantation. In a boggy flush we found a small population, although individuals were of considerable size, some almost 50cm high. Eventually the scattered spruce trees will shade the species out. Although *Oreopteris limbosperma* was recorded by Francis Rose for this area we did not find it but an interesting form of *D. dilatata* was found in these wetter areas which may turn out to be a hybrid with *carthusiana,* or similar to the odd diploid (*D. expansa* or a new species?) found by Hugh Corley in south-west Argyll.
We went back to the Laboratory at the Centre at tea-time where everyone was able to use microscopes and get to know more intimately the species collected during the day.

Sunday morning was wet as we met in the village car park at Hawkley. Walking along the lane to the Warren the chalky clay banks supported several ferns liking the calcium or other base elements, *Asplenium adiantum-nigrum, A. scolopendrium, Polystichum aculeatum,* and surprisingly, *P. setiferum.* The ecological requirements of this plant are by no means clear. Furthermore we had difficulty in dintinguishing the two, as basal angle of the pinnule segments seemed very variable as did texture of frond.

Lower down the lane we went into the Warren, a steep yew-beech hanger with much hazel, sycamore and field maple on the lower slopes. Here *Dryopteris* species (*D. affinis* and *D. filix-mas* and very occasionally *D. dilatata*) with hart's tongues and shield ferns were in abundance. Along the track to the entrance of the wood was a house with an ornamental pond. One member was alert enough in the now heavy rain, to realise the pond was covered completely with the red autumn form of *Azolla.* Permission was given by the owner for us to collect some – in fact she invited us to clear the pond but as there was some 50 square metres of it we could not oblige!

After a dampish pub lunch we went to Liphook Golf Course where in a hollow between fairways we found a damp peaty area with two extensive populations of *Lycopodiella inundata,* the bog club-moss. A few sporing spikes were seen amongst the myriads of round-leaved sundews. The weather was fine now but further searches did not bring more species to light except *Polypodium vulgare, P. interjectum* and the possible hybrid *P.* x *mantoniae.* The party went back to Rogate and had a further hour sorting and examining material in the laboratory.

We should like to thank King's College, London for allowing us to use the Centre and Mr J Johnston, the acting Warden for making our stay so pleasant.

A C Jermy & K P Kavanagh

FERNS AND FOOTBALL

Martin Rickard

I wonder if many pteridologists watched the recent Northern Ireland v. England football match? It was not an exciting game but it was brightened up by the occasional camera angle which showed impressive mountains overshadowing the Belfast pitch. These put me in mind of the not too distant Mourne Mountains made famous pteridologically by one of our early members, William H. Phillips.

In the *Ferns of Ulster* by Phillips and Robert Ll. Praeger there is a list of species and varieties found in the province together with their localities. The list is very long but the most significant point for me is the statement that "The Mourne Mountains are very rich in varieties of Blechnum". This brings me back to the football match and the occasional glimpse of the Belfast mountains — how I wish these, and more particularly the Mourne Mountains, were more accessible. Unfortunately, I don't anticipate ever getting the opportunity to explore the area myself, but a list of some of Phillips' finds might serve to prompt others to investigate the region, assuming it is politically safe to do so.

In this list all plants are varieties of *Blechnum spicant,* and all were recorded 'On mountains near Newcastle, County Down':

anomalum multifidum.
anomalum trinervium.
bifidum.
caudatum.
crispatum.
cristatum.
cruciatum.
ramosum (a R.Ll. Praeger find).
strictum.
trinervium, 'This striking variety occurs abundantly at the Newcastle end of the Mourne Mountains, where it was first observed by W.H. Phillips in 1876, and where it forms a peculiar feature of the local flora. The fronds are shaped like a cross-handled sword, owing to the extraordinary development of the lowest pair of lobes, which sometimes measure 3 to 4 inches across'.

Of these varieties the only one of any merit that I have seen is a single plant of 'Cristatum' at Reg Kaye's nursery in Silverdale. I doubt if any of the others are currently in cultivation, how frustrating it is therefore to read that 'Trinervium' is a feature of the local flora!

ATHYRIUM FILIX-FEMINA 'KALOTHRIX'

J W Dyce

This year I am writing about a long-lost, but very nostalgic, fern variety, *Athyrium filix-femina* 'Kalothrix'. I have two reasons. The first is to keep fresh in our minds the memory of this most beautiful of the Lady Fern varieties which created great excitement among fern growers just over 100 years ago and was responsible for the spilling of much printers ink in the spate of writings which appeared in the gardening – and other – press of the day, as well as, at a later date, the publications of our Society. For this reason, I have gathered together all the facts from the various papers concerned and have tried, to the best of my ability, to present them here briefly. My second reason is that a Lady Fern variety resembling 'Kalothrix' has recently been raised by two of our most enthusiastic amateur breeders of ferns, and again we are up against the same question which dominates the history of the earlier plant.

'Kalothrix' was a unique fern sport – no other species has yielded a parallel. It has been described as the most refined of all *Athyrium filix-femina* varieties, standing alone among British ferns as the acme in delicate beauty, and unrivalled in the fineness of its appearance. The most extravagant language has been used to depict it by its human contemporaries, led, of course, by Druery, that master of superlative phraseology. The fronds, stated by Lowe to be 18 inches long and 6 inches wide, were very finely divided, with long falcate pinnules, cut into very narrow subdivisions reduced symmetrically to slender threads almost hair-like in appearance – hence the name which means "beautiful hair". They had a peculiar silky or glossy lustre, translucent in quality and looking as if formed of fine, pale-green floss silk or spun glass. Obviously, *some* fern!

How much of all that we can discount as the enthusiastic vapourings of its devotees, I cannot say, but the fact remains that it must have been a most remarkable fern and even the more sedate writers of the time lapsed into the superlative when describing it. Yet, it was very unstable, subject to partial reversion to its plumose progenitor, a fault which seemingly its superb beauty, when on its best behaviour, could condone!

Clearly, it was an enthusiastic specialist's fern. It is said it was not really difficult to grow, but it required very protected conditions if its delicate beauty was to be seen at its best. It could only be grown under glass. Exposure to strong light, air, dryness, wind or even draught was rapidly fatal, and water thrown over the fronds was a sure way to injure them. Good drainage was necessary else it damped off during the winter. The happiest results were obtained under filmy-house conditions, standing the pot on the floor about 2 inches above the water level. Low temperature was no hardship.

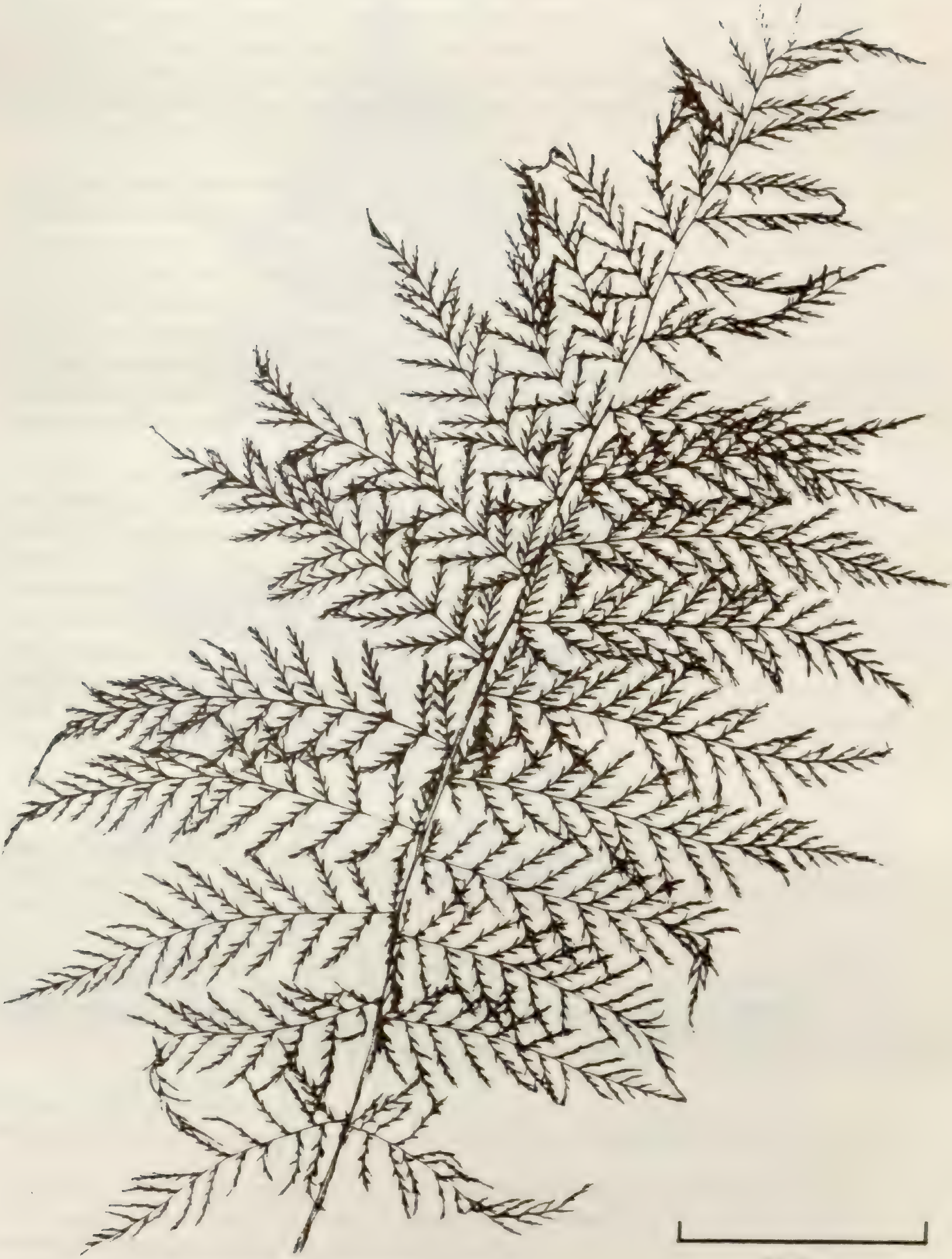
Along with *Polypodium vulgare* 'Cambricum', *A. f-f.* 'Kalothrix' has the oldest recorded history of any fern variety. A frond exists in the Sherardian Herbarium at the Oxford Botanic Garden of this fern or something very like it. The Herbarium was compiled by Dr Sherard who founded the botanical professorship at Oxford University. He was born in 1659 and died in 1728, so the frond which was collected by him in the Mourne Mountains in Ireland is, up to the present time, at least 250 to 260 years old. This is the first-known record of 'Kalothrix' or any variety approaching it, and everything points to the Irish plant as its ancestor. It seems extremely unlikely that Sherard, on finding such a good thing, would content himself with only a dried frond and leave the plant behind. Would he not have collected it and cultivated it? That he did so would seem to be confirmed by a comment written on the herbarium sheet by the early well-known botanist, John Ray – "A most beautiful and distinct form *which ought to have a separate name*". (The italics are mine – JWD.) Although not signed by Ray a sub-note states it is in his handwriting. Since Ray died about 1704/05 this anti-dates the frond by another 20 years to at least 270 to 280 years old.

In his writings on 'Kalothrix', Dr F W Stansfield regards Ray's comment as indirect evidence that the fern persisted as a living plant, for what would be the use of giving a new name to a fern of which only a dried frond was known to exist. There are, however, no records of its subsequent cultivation. Since Sherard's herbarium was given to the University Garden, it seems probable that his plants went there as well. Once there, the Irish plant probably scattered spores which gave rise to a plumose form, or the plant itself may have reverted. The later raised 'Kalothrix' was subject to such reversion and its spores gave rise to a percentage of plumose plants, so it would seem safe to assume that the original variety behaved in a similar way. This would agree with and explain the vague tradition of an Irish 'Plumosum' at Oxford from which 'Kalothrix' was raised in 1870 by Howlett and in 1874 by Sim.

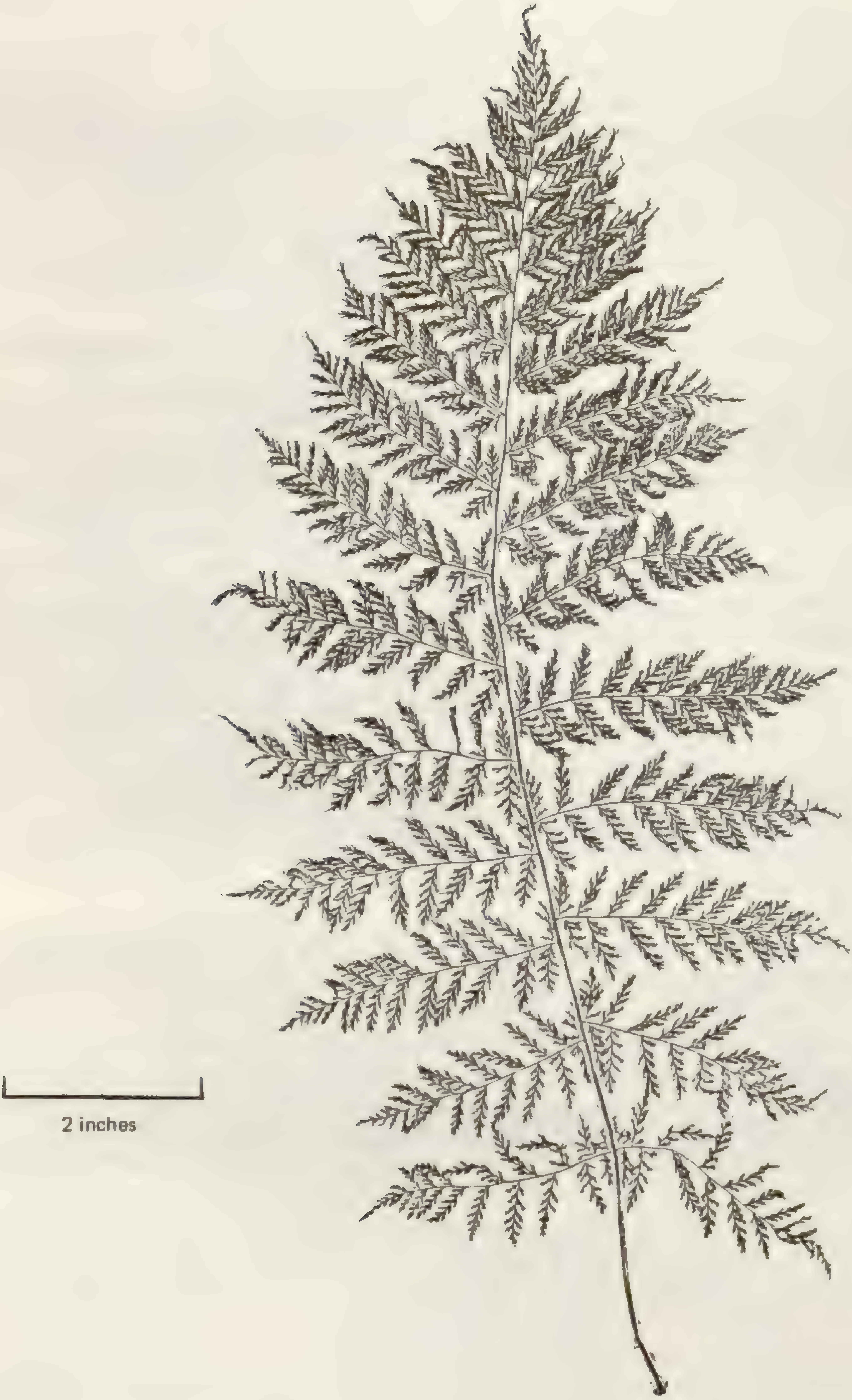
Dr Stansfield goes on to admit there are many missing links in this chain of evidence adduced by him, and absolute proof of the descent of 'Kalothrix' from Sherard's plant is wanting, but the pedigree is probably as good as many in the Herald's College. This hypothetical descent must be considered as more probable than an alternative theory that a fairly large batch of 'Kalothrix' sprang suddenly from a particular plant of *A.f-f.* 'Plumosum Horsfall', or some other plumosum, which had never before or since produced anything like 'Kalothrix' in many thousands of sporelings. This theory was propounded by Baxter, the Curator of the Oxford Botanic Garden at the time. He stated that a plumose Athyrium had been received from Chelsea Physic Garden and for some time was thought to be an Irish form. However, Moore of Chelsea explained that the plant concerned was 'Plumosum Horsfall'. Part of the original of this Yorkshire wild find had been sent to Chelsea by Stansfield's Nursery in Yorkshire. The nursery produced many thousands of plants from the spores of this variety but none resembled 'Kalothrix'.

The Doctor found only one *A. f-f.* 'Plumosum' at Oxford – not 'Horsfall', but unmistakably a plumosum which comes from the spores of 'Kalothrix', and from which 'Kalothrix' can in turn be raised. It had some resemblance to 'Horsfall', but was dwarfer, thinner in texture and less acute in its ultimate segments. When exposed to the sun it burned to a peaty-brown which is very characteristic and unmistakable. If, as seemed probable, it was the plumosum from which Howlett raised his 'Kalothrix', it was at least equally probable that it was itself the offspring, immediate or remote, of another 'Kalothrix'. If so, what 'Kalothrix'? Sherard's plant was the only one known to exist previously, and everything points to this Mourne Mountains variety as the ancestor of the more modern 'Kalothrix' through plumose progeny. Of course, this can only be surmised, but the fact remains that only the Oxford plant has ever produced 'Kalothrix'.

Dr Stansfield also visited the Sherardian Herbarium to see the frond specimen which was said to be "almost identical with 'Kalothrix' ". His first objective was to clear up whether it was 'Kalothrix' or only something more or less resembling it. At first sight it appeared different from the cultivated plants of the variety, being proportionately narrower in outline and a little less disected. The texture and marginal cutting were exactly those of 'Kalothrix', and, upon reflection, he considered it was just what one would expect a wild collected specimen of that form to be, and indeed resembled strongly what he remembered the first plants of 'Kalothrix' sent out by Sim about 1875 to be like – i.e. smaller and less developed than the later cultivated specimens. The frond was gummed down on the paper so he was unable to determine if any trace of fructification remained on it. However, when fruit was found on 'Kalothrix' it was generally in the form of irregularly scattered, often isolated and naked, sporangia which, upon ripening, rapidly disappeared, leaving little or no trace behind.



Athyrium filix-femina 'Kalothrix Coughlin' raised from *A.f.* 'Plumosum Penny' by Ray & Rita Coughlin



Athyrium filix-femina 'Kalothrix'
from Jones Nature Prints, 1876-1880

The results of the spore sowings by Howlett, an amateur grower in Oxford, and by Sim, a nurseryman at Foots Cray in Kent, in 1870 and 1874 respectively, from the *A. f-f.* 'Plumosum' in Oxford Botanic Garden created a great furore in the fern world and 'Kalothrix' became a popular fern with fern growers. It was also the subject of much writing in the horticultural press, with much debate on its origins. I have tried to precis this in the present article, culling my information from the papers, mostly by Dr F W Stansfield, appearing in our Society's journal, the British Fern Gazette, and from the writings of C T Druery in the national press and gardening journals.

As I have already mentioned, 'Kalothrix' needs special conditions for its successful cultivation, and with the decline in fern interest during the inter-war years it disappeared from our ken and I would be very pleasantly surprised if it still existed anywhere today. But the plumose forms to which it gave rise and which are capable of reproducing the variety itself, are not so "miffy", and must have spread far and wide during the period of intense reproduction which followed the introduction of the fern by Howlett and Sim. A large number of plumose forms of Lady Fern exist today, some named, many not named, and I do not think it is assuming too much when I say that at least a few of them must be descended from those 'Kalothrix' plumose forms.

And that brings me to my second reason for this article on 'Kalothrix'. A few years ago our members Ray and Rita Coughlin who are enthusiastic breeders of ferns in the Midlands, produced from the spores of *A. f-f.* 'Plumosum Penny' two plants of a type closely resembling 'Kalothrix'. A frond is reproduced here, along with one of the original 'Kalothrix'. From what I have seen of it the texture does not appear to be *quite* so delicate, but the division is equally as fine. However, how much of the superlative can we discount when reading those early writings?! Is 'Plumosum Penny' a descendant of 'Kalothrix', resulting from the spate of plumose forms spread around 100 years ago? Again we can only surmise and add one more question to the history of *A. f-f.* 'Kalothrix', our oldest fern variety, going back nigh on three centuries.

Related or not to the original 'Kalothrix', 'Kalothrix Coughlin' fully deserves its name as a worthy successor to its illustrious namesake, and its raisers are to be congratulated on successfully introducing us once again to the delicate beauty of this Lady Fern variety. Let us hope their plants continue to flourish and that in time they can be spread around among other growers.

HOW MANY SPORES DOES A FERN PRODUCE ANNUALLY ?

Reproduced from the writings of C T Druery by J W Dyce

Usually Druery noted in his Press Cuttings where an article was published, but the only information given about the following paper is the date of publication, 31 August 1895.

For many years I have planned to count the number of spores on a typical fern plant, but never got round to it. However, I have now come across this paper by Druery which saves me the trouble, and at the same time fills me with amazement, so much so that it is worthy of a page in the Bulletin. Druery writes –

"In the higher grades of cryptogamous plants, such as ferns, resembling, as they do in many features, the foliage of seed-bearing plants whose powers of multiplication, great as they are, can be usually reckoned in thousands, their actual fecundity is little recognised, and a careful computation of the actual crop of one of our familiar British Lady Ferns may, therefore, be of interest. Selecting a well-grown, robust specimen of

Athyrium filix-femina, var. percristatum Cousens, a fine typical form, grown in full light and bearing from a single crown twelve yard-long fronds, we recently made a careful estimate of the actual visible crop of spores, with the following astounding result.

Each of the twelve fronds bore twenty or more divisions or pinnae on each side of the rachis, i.e. forty per frond, each pinna was subdivided into thirty pinnulets, i.e. fifteen on each side. Each of these bore two rows of sori, or heaps of spore capsules, averaging twenty per pinnule, each heap contained at least fifty capsules or sporangia, and each of these quite fifty spores. These figures are, of course, average ones, as all the parts of the tapering frond vary in length; but this average has been taken well within the facts, and an immense number of spore heaps which covered the beautifully-cut tassels peculiar to this variety have been left out altogether. Nevertheless, we arrive by simple multiplication, which anyone can check for himself, at this marvellous result:
12 x 40 x 30 x 20 x 50 x 50 = 720,000,000 (seven hundred and twenty millions) spores as the annual crop of a single crown of an adult Lady Fern.

Even this, however, does not end the potentialities of reproduction, since each spore yields a number of fertilised seed cells, and although usually only one fern results, the cultivator, by severing the prothallus and isolating these, can raise several ferns instead of one, thus bringing up the hundreds of millions into thousands if he be granted only two things for his labour, and that is, the life term of Methuselah and the patience of a series of Jobs."

Druery records the results of a later count, made in 1906, species and variety not mentioned, which yielded the much greater result of 1,120,000,000 (eleven hundred and twenty million) spores!

*** ****

As an addendum to my above article on the number of spores produced by a single fern plant, I have recently unearthed, during my researching for my article on *A.f.* 'Kalothrix' which appears in the present issue of the *Bulletin*, a long-overlooked paper by Druery, published in 1907 in, I think, the *Journal of Horticulture* — Druery omits this information. The details given here do not appear to have been published elsewhere by the author — only brief references can be found in his books and some other writings.

In the above article I mentioned that Druery had on one occasion produced *seven* plants from a single spore, and his story of this achievement follows —

"Three years ago I sowed spores of my plumose strain of *Athyrium filix-femina* 'Superbum' in a small thumb pot. The sowing went wrong, the little pot developed a few spores only, and, room being needed, it was lifted out to be thrown away when a minute little clump of clustered mossy-looking frondlets attracted attention. I discovered that no fewer than seven young ferns had sprung from one prothallus. These were severed, and I thus obtained seven tiny plants, each with its own rootlet. As they developed the *A.f.* 'Kalothrix' silkiness appeared. I have now six beautifully-tasselled plants of the 'Kalothrix' type. It is, of course, a matter of doubt whether these arose from the spores of 'Superbum' actually sown or from a stray spore of 'Kalothrix' which, by crossing, acquired the *superbum* faculty of cresting. This latter theory seems the more probable, since in one of the plants part of one of the pinnae shows distinctly that tendency to partial reversion which is peculiar to 'Kalothrix'; on the contrary, if they have resulted from crossing it is extraordinary that all the seven archegonia should have been fertilised with similar antherozoids. This last fact is perhaps the most noteworthy. In any case, two points are very remarkable, the one that so beautiful a form should be obtained by such an accident, and the other that so many plants should originate from a single prothallus."

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WHY ARE BRITISH FERNS SO VARIABLE?

Richard Rush

A remarkable number of striking and highly developed variant forms have been found in Britain even though we have relatively few fern species. Further variants have been raised; many of these, the direct progeny of wild finds, can reasonably be viewed not as the creations of cultivation but rather as latent natural variations exposed in cultivation. Many of these variants can be reproduced quite well from spores. While the plants raised are frequently in a range, in varying proportions, from some much like the original through partial to complete reversions to the normal, it can also occur that plants raised exhibit a range of variations, with scarcely any two exactly alike, with one or two substantially embellishing a parental feature or even exhibiting an additional varietal character, such as dwarfness or cresting, which wasn't apparent in the parent. We might suppose that some of these compulsively variable strains in cultivation could have their origins in past varietal crossing, but more extreme development can arise from spores from wild finds. I'm here more than usually ready to be corrected, but it appears to me that at taxonomic levels below that of species attention is commonly paid to reproductive consistency: I can't entirely understand why – if distinctions of a minor kind are made – a high level of inconsistency (variability) should represent less distinctiveness from the typical, let alone why variants which happen to be cultivated but are indisputably of wild origin are sometimes treated as "cultivars". British variants tend to be loosely (and sensibly, on the whole) lumped together as "varieties": in contexts like the present "variants" seems preferable as a comprehensive neutral term. We should not underestimate the numbers of variants found in other countries which might be compared with British "varieties" by discounting too readily more formally named variants. Judgements as to their calibre and the accuracy of their naming, in British terms, are more difficult. That they have been named, that names have sometimes been formally published, that sometimes minor or irregular variants have been thought worthy of naming and depiction and that in such cases naming sometimes veers towards exaggeration (we're here talking of variants other than well-defined geographical varieties) demonstrate that, when seen, these deviant plants have not been disregarded, and that interest in variants is no more uniquely British than is their occurrence – of which the considerable interest in British variants in other countries is further evidence.

Assiduous variety hunting in Britain has continued over a long period, but fern enthusiasm is of long-standing in the N.E. of the U.S.A., as popular literature from that area shows – showing, additionally, that interest has extended to variants. The haul of variants seems quite modest, many seeming to be what amount to selections from the outer end of the normal range of variation. I'm aware of only one find of a notably highly developed kind, a very dissect form of *Asplenium platyneuron* found in 1900 and presumably extinct. There might have been one or two more, and certainly there have been a few which the keen variety collector would not disdain, but I am sceptical that, had highly developed variants been found in any numbers, they would have been ignored while more minor kinds have been named and illustrated in more than one book. And, besides, length of time in which there has been horticulturally oriented fern hunting ought, seemingly, to be unimportant. In Britain it is clear that even before the turn of the century wider popular interest had waned as a consequence, it was plausibly argued, of a surfeit of variants, indiscriminately collected and named, so that in 1888 Charles Druery, in his *Choice British Ferns*, attempted a discriminatory listing. He refined, with the aid of a BPS committee, this approach in his *The Book of British Ferns* (1901), yet even so about 700 are listed therein. Reference to this avowedly selective work shows that a mere ten years, e.g. the 1860s, sufficed for the discovery of a wide array of highly developed varieties. We might think that countries which have had nothing comparable to the 50 years from 1850 in Britain of intensive and extravagantly fruitful hunting should have at least as vast an array awaiting discovery — and even greater riches if there are more species, and more still if there are more plants over a bigger area.

It might be that with a little over 10 times as many *Polystichum* species (and a commensurately higher number of hybrids) the Japanese fern enthusiast would have less incentive to look for, and greater problems in recognising, subtler kinds of variation, such as those principally consisting in changes in pinnule shape and size, and dissection, such as characterise some *P. setiferum* varieties. Yet, in fact, the names of some of the known Japanese variants are suggestive of their being of such kinds. I suspect that there are more Japanese variants cultivated in Japan than are included in published sources — of which there are already more than is widely appreciated. Nevertheless, compared with the numbers found in Britain, everything seems to point to a huge disparity as, in species, there is a huge disparity in the opposite direction. In countries far richer in species than Britain why should it be, we might ask, minor and more subtle variants (I mean a distinction) have been collected and named while the more striking variants (including simply crested forms) of the kinds which advertise their presence, which we might suppose would occur, would seem to have been largely passed by? Why, unless such kinds, rare here, are much rarer elsewhere. The more spectacular British variants were by no means all found by celebrated variety hunters: specialised acuity, skill, a tradition of skill are scarcely applicable.

That we have a lot of varieties as a consequence of a lot of variety hunting cannot be discounted as a factor, yet this begs the question of why intensive hunting arose in the first place. The finds made in the 19th century were surely the stimuli as well as the fruits of an enthusiasm. The bulk of notable finds were made after circa 1850, the 30 years from 1860 seeming especially productive. We might ask not only "why so many?" but also "why so many then?". Whatever the reasons for the popularity of ferns and fern growing, the 19th C. saw the publication of exciting new books on the overwhelmingly diverse ferns of other countries and exciting species, with the twin attractions of being exotic and, for the layman at least, novel, were becoming available. If fern growers craved variety, variants were not the only option. If economic reasons tended to confine more substantial collections of tender exotic ferns to a well-off minority, it is my impression that the feasible potential for introductions of foreign hardy and semi-hardy species was not, relative to the level of interest in ferns, explored with full vigour, and that a pattern was set, which to a considerable extent survives, of there being an at-face value disproportionate emphasis on British ferns (as expressed in the odd formulation "British and Foreign Ferns"). The continuing amicable alliance fern growers make with students of the native fern flora — the blurring, in fact, of that nominal distinction — stems from that emphasis: compared with other horticultural enthusiasms this is surely unusual, in a British context. Briefly, the proposition here being advanced is that the high level of variation in Britain was a phenomenon, seemingly peculiar to Britain in its scale, which was discovered from around 1850. That it arose then, or, rather, that it had developed in the preceding decades, is a hypothesis which could be considered: contrary views would be no less dependent on supposition.

Oreopteris limbosperma variants can be adduced in support of that hypothesis: according to Druery the species was for long renowned for its unvariability, but from (roughly) 1860, a very large number of variants were found — more than for any *Dryopteris* species, with which the species was then united in *Lastrea.* In this century it seems to have reverted to the "peculiar constancy" of which Druery wrote — only in recent years have a couple of minor finds been made. One could argue for this latter as forming part of a larger pattern, of a golden age followed by dark ages followed by a modest renaissance.

Asplenium hybrid (several in number but rare individually, some recognisable as odd plants in advance of identification as hybrids, thus finds often fairly well dated) finds seem to follow the same pattern reasonably well, but as with more recent finds of variants of kinds long eluding variety hunters an upturn in field exploration would seem the most likely explanation.

I've sought in the preceding, to briefly present a case, arguing that the question in my title is worthy of serious attention. It is not the less so because the collecting and naming of variants has been so much the domain of fern growers, nor because not all of those qualified to investigate the issues raised are necessarily enamoured of the most extreme variants. I can't answer the question, but, assuming that there is no single, simple explanation and that various factors could be involved (though one of them might be the principal one, or the most interesting), I offer a few possibilities.

As we know many species derive originally from hybrids. It is quite evident that some species are highly variable, and other scarcely at all. It appears to me that hybrid-derived species are intermediate in this, as in morphology and as in (usually?) habitats favoured. *Polypodium australe* seems much richer in well-marked varieties than *P. vulgare*: does not *P. interjectum* come in the middle? Similarly for *Polystichum setiferum, P. lonchitis* and *P. aculeatum.* Where there are (or, in not too distant times, were) many more species than in Britain there would be more scope for the evolution of hybrid-derived species, this process perhaps having an inherent tendency to suppress variability in the hybrid-derived species, which species would often tend to compete fairly directly with at least one of the parent species and might, most particularly, have the edge over perhaps marginally less vigorous variant forms of that parent. In the long term this could inhibit the establishment and development of variant strains. (With 3 species capable of forming de novo hybrids, there would be 3 possible hybrids: with 6 species there would be 15 possibilities). Supposing that typical forms and the successional development of varieties might, effectively, be in competition, with the former tending to have the advantage, climate could also play a part. It might be posited that Britain is not especially favourable to ferns overall: the climate is erratic, though within a fairly narrow range, favouring adaptable species rather than those adapted to and depending upon (for example) reliable high or low summer rainfall. Yet just by making water supply more reliable, and other such adjustments, it is remarkable how wide a range of alien plants can be and are grown outside in Britain. We might wonder if the balance of competitive advantage between variant ferns and normal forms is tipped somewhat (or wobbly?) so as to be not as unfavourable to the development of variant strains as elsewhere. A run of abnormally unfavourable seasons might reduce the number of fern plants: if several abnormally favourable seasons followed then variants (and hybrids?) might find suitable niches, vacated by normal plants. More variants arise in our spore cultures than in nature because, surely, we allow the development of what, in nature, would be unusually high percentages of the notional potential number of sporelings from spores sown: we make space for the oddities as well as normal forms, we reduce the direct competition between them.

If the above notions aren't piffle and poppycock (as they might be) they, or similar, might be contributing factors. Comparisons might be sought and made with analagous island countries, I suppose, to see if they too were well endowed with variant strains. I discussed these questions in correspondence with M. C. Young of South Australia. What seemed to us to be a notion which might be considered to account for the extraordinary number of highly developed variants found from circa 1850 is the influence of industrial pollution. As Mike Young pointed out, the hey-day of variety finds was preceded by the rapid industrialisation of Britain. Circa the 1820s Nathaniel Ward found pollution levels in inner London inimical to the growth of ferns and mosses (and circa 1830 recognised the beneficial effects of a prototypical "Wardian Case"). Clearly this pollution thinned in rural areas: the proposition is that at a certain dosage a pollutant, or admixture of pollutants, might have interfered genetically with some of our ferns, and/or might have acted to interfere with competitive balance. Rather rashly, I now think, I sought to refine this broad idea and consulted Peter Freer-Smith, of the Department of Biological Sciences at the University of Lancaster. I am most grateful for his interest and co-operation, most especially since pteridology is not his field, and since, being no scientist, I couldn't adequately "speak" for pteridology nor adequately discuss the issues involved. He has recently drawn to my attention a paper* which I infer could be pertinent but which I comprehend scarcely at all.

In short, I can take this no further.

* KLEKOWSKI, E. J., Jr. & KLEKOWSKI, E. 1982. Mutation in ferns growing in an environment contaminated with polychlorinated biphenyls. Amer.J.Bot. 69(5) 721-727.

FLINT WALLS

Peter Grimbly

Those of us fortunate to live in the county of Sussex are blessed with one of the more favourable climates that England has to offer. Those who, like myself, live south of the Downs are even more fortunate, with more sunshine and less extreme weather than anywhere else in the country.

To the fern lover, however, the Sussex Coast has few attractions. The dry climate does not encourage these plants and the lack of watercourses on the chalk downs means that suitable habitats are few. Nevertheless, the chalk scree, when it is covered by trees, does provide an excellent home for some luxuriant colonies of *Asplenium scolopendrium* while the few alkaline streams emerging below the chalk support some fine specimens of *Polystichum setiferum.* This, however, is virtually the limit of the natural habitats.

Fortunately the chalk itself has yielded a material with which man has used to create an excellent artificial fern habitat. These are the flints which lie in bands through the chalk and which man has mined for thousands of years. The most frequent use of these flints in recent centuries has been to construct mile upon mile of flint wall everyone of which is a potential fern habitat.

The traditional wall is constructed of flint held together with a mortar made from lime and Chichester gravel. This latter is itself a product of flint pounded by wave action. This mortar, after a suitable period of weathering – about two hundred years seems about right – forms a medium strong enough to hold up the wall yet weak enough to yield to the exploring roots of ferns.

In my own garden I am surrounded by flint walls of an appropriate age. Most are unsuitable for ferns due to excessive exposure to the drying sun or the clothing action of ivy. One section has, however, provided me with an excellent site to study this fern habitat. The wall in question is some fifteen feet long and five feet high and forms the lower wall of a lean-to shed. It faces west-northwest and is sheltered from the sun by tall shrubs, however, it is exposed to the prevailing winds and the rain they carry. To add to the rain this wall receives the run off from the lean-to which by luck was not fitted with a gutter. This damp shaded habitat is ideal for wall ferns but the results have not been quite as I would have expected.

My first introduction was an adult plant of *Asplenium trichomanes* inserted into a hole where a loose flint had fallen out. This plant has flourished to produce a large mound of growth each year. All subsequent attempts to establish this species have failed. The local bird population seemed convinced that these plantings hid abundant insect treasures and they were torn out in the search for these.

Attempts to plant *Asplenium ruta-muraria* have all been unsuccessful despite the fact that this is the only species which grows in the immediate locality and my plants have been raised from local spores.

Asplenium ceterach has somewhat begrudgingly taken hold and still gives the impression that it could have found a more suitable place to live. *Asplenium adiantum-nigrum* has also proved a fickle species establishing well and then succumbing for no apparent reason.

My greatest success, however, has been with *Asplenium septentrionale*. Although this species nearest natural abode is in the moist Welsh mountains it has revelled in my wall and grows larger every year.

This wall does also provide a home for other ferns whose arrival has not been planned. Even before I arrived on the scene *Asplenium scolopendrium* was abundant in the garden and no less so on this wall. Since then, spores of *Polystichum setiferum* and *Polypodium interjectum* have found their way from nearby plants and grown successfully.

Surprisingly neither *Asplenium ruta-muraria* which grows only a few hundred yards away, nor *Asplenium trichomanes* which is common on the walls of a nearby village, have found their way to the site. This is probably due largely to the prevailing winds which are in the wrong direction for spore dispersal.

The most astonishing coloniser, however, has been *Asplenium septentrionale* which has spread readily from my original planting and established new colonies in the deep cracks between flints and mortar. This species, whose natural home is so far removed from mine – my spores come from Sweden – is more at home on my flint wall than any of the native species save the ubiquitous hart's-tongue.

It is all the more surprising since it hates lime and prefers granite. Admittedly, flint is as hard and uncompromising as granite but the mortar is spongy and has a pH of 7.9. I can only imagine that either I have a lime tolerant form of the species or else the roots are in some way able to find sufficient spaces in the mortar where the pH is much lower than my measurements suggest.

Footnote: I find the successful cultivation of *Asplenium septentrionale* on a flint wall as reported here particularly interesting. Earlier this century *A. septentrionale* was found on two separate flint walls in the Box Hill area of Surrey:

1. 1911 – 1917, Flint wall near Box Hill, C E Salmon. (Later supposed to be the wall in Headley Lane near Juniper Hall by Lousley.)
2. 1910 – 1913, Old wall in Dorking District, C E Salmon.

Of course these *might* be the same locality. Was the second wall flint? Quite reasonably some suspicion was placed on these records at the time and had they not been recorded by Salmon (a very notable Surrey botanist) it is doubtful if the records would have been published. Now its successful establishment on another flint wall, albeit in Sussex, poses the question of whether *A. septentrionale* still might survive near Box Hill. If it does it would refloat the question – 'Was it native in the first place?'. (Editor)

A BRIEF ENCOUNTER WITH ICELANDIC FERNS

B A Thomas

Iceland is situated in the northern part of the Atlantic Ocean, 180 miles south-east of Greenland, 600 miles west of Norway and 250 miles north-west of the Faeroes. The mainland is roughly 250 miles east to west and 180 miles north to south. There are a number of small islands which are mainly off the west, north and south coasts; the northern island of Grimsey, being crossed by the arctic circle. Iceland is of volcanic origin, and there is still periodic activity in the island. The land surface is generally described as 93% highland or tableland and 7% lowland. The lowlands are mainly coastal plains, of glacial or fluvoglacial origin, but include the valleys extending inland from the sea-coast. The interior has an average height of 1350 ft with much of it being an undulating surface of lava or deserts of black dust, gravel and stone. Rising up above are dome shaped plateaux up to nearly 4,000 ft, covered with ice caps and giving off glaciers that sometimes almost reach the sea.

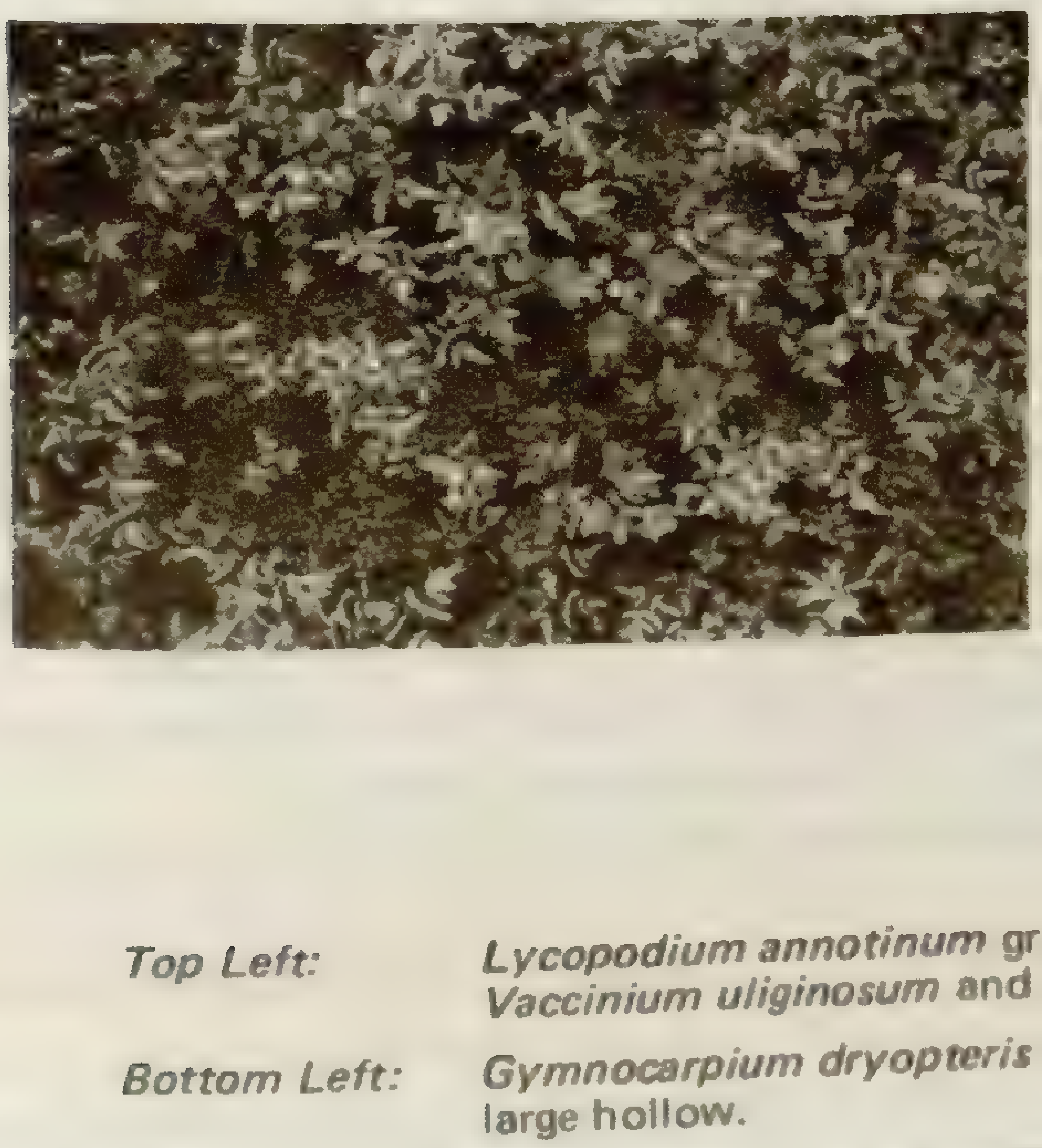
The climate is intermediate between temperate and arctic being very strongly influenced by the Gulf Stream. Main summer temperatures are mostly between 7 and 10^{O}C. This climate, coupled with the severe in summer/winter day length restrict the growth of plants to a relatively short summer season. The vegetation is also sometimes affected by dust and sand being blown from the deserts or by water torrents caused by large scale melting of ice.

There are approximately 450 species of vascular plants in Iceland although the great difference in edaphic and climatic conditions and the very varied topography have produced many different plant communities. Pteridophytes are similarly few in number with some species having very restricted distributions.

As there is a virtual absence of tree cover in Iceland many ferns are restricted to rocky habitats such as cliffs or crevices in the lava fields. The pteridophytes generally accepted to be in Iceland are *Huperzia selago* (common in all parts), *Diphasiastrum alpinum* (common in N, NW & SW, rare in E), *L. annotinum* (common in NW, rare in SW, N & W). *L. clavatum* (very rare, only in E), *Selaginella selaginoides* (common in all parts), *Isoetes echinospora* (common in SW, rare in N & NE), *I. lacustris* (rare in SW, W, NW, N & S), *Equisetum hyemale* (common except in E), *E. variegatum* (common), *E. arvense* (common), *E. sylvaticum* (very rare in NW & E), *E. pratense* (common), *E. fluviatile* (common), *Ophioglossum azoricum* (frequent in SW, N & S, rare elsewhere), *Botrychium lunaria* (common), *B. lanceolatum* (frequent), *B. boreale* (rare in N, W & NW), *B. simplex* (two localities in S), *Polypodium vulgare* (frequent except in central highlands), *Cryptogamma crispa* (very rare, only in NW), *Hymenophyllum wilsonii* (very rare, only in SE), *Phegopteris connectilis* (frequent in SW, W & NW, rare in N, E, SE & S), *Asplenium trichomanes* (only in one locality in SE), *A. viride* (rare in N & SE), *A. septentrionale* (very rare, only in N), *Athyrium filix-femina* (frequent in SW, W & NW, rare in NE, SE & S), *A. distentifolium* (common in NW), *Cystopteris fragilis* (common), *C. dickieana* (rare in N), *Gymnocarpium dryopteris* (common in SW, W, NW & E, rare elsewhere), *Woodsia ilvensis* (common), *W. alpina* (rare), *W. glabella* (very rare), *Polystichum lonchitis* (frequent in W, NW, N, NE & E, rare elsewhere), *Dryopteris filix-mas* (frequent in NW, rare in SW & W), *D. dilatata* (rare in SW & W), *D. expansa* (frequent in SW, W & NW, rare in N), *Blechnum spicant* (frequent in SW, W, NW, N, E & SE, rare in S).

I visited Iceland for 17 days in July/August 1983 and travelled rather rapidly through much of the country. Unfortunately I did not have time to visit the fern-rich north west peninsular nor the eastern coastal strip.

Budahraun: The view across the *Rhacomitrium* covered tefra towards the central volvano.



Top Left:	*Lycopodium annotinum* growing on top of the tefra in association with *Vaccinium uliginosum* and *Empetrum nigrum*.
Bottom Left:	*Gymnocarpium dryopteris* growing in *Rhacomitrium* at the bottom of a large hollow.
Right:	*Dryopteris filix-mas* growing in a hollow at the edge of the lava field.

Many species which are common in Britain are much rarer in Iceland so I was particularly fortunate to find *Asplenium trichomanes* in its only recorded habitat at Skaftafell. The few plants that I saw were growing in rock crevices and were of the subspecies *trichomanes* thereby fitting in with its general habitat preference for lime-free rocks. In contrast it was initially surprising, but soon expected, to find *Huperzia selago, Selaginella selaginoides* and *Botrychium lunaria* at virtually every stop that we made around the country. Similarly having the three commonest ferns being in order *Cystopteris fragilis, Woodsia ilvensis* and *Gymnocarpium dryopteris* constantly reminded me of the different nature of the pteridophyte flora. *Equisetum arvense* and *E. pratense* were both very common with the former showing its usual great diversity from erect to prostrate in growth form. *E. fluviatile, E. hyemale* and *E. variegatum* were also common and easy to find although they were more restricted by habitat than the other two. The large numbers of horsetails and the close proximity of different species leads me to think that there should be a great chance of finding hybrids in Iceland. Unhappily I saw none – or at least recognised none.

The highlight of my stay was undoubtedly my visit to Budahraun on the southern coast of the Snaefellsnes peninsular in western Iceland (64°48′N and 22°24′W). The area was a lava field about 3½ miles long and projecting two miles into the sea. Most of the exposed lava came from a central volcano now reduced to 150 ft high crater. The ground is extremely uneven being made up of lava and tefra which has collapsed into lava pipes in many places. Some areas have a rather patchy cover of *Rhacomitrium* and lichens while other areas are virtually covered with *Rhacomitrium* thereby making walking extremely hazardous. Many flowering plants live in the area presumably as a result of the accumulation of *Rhacomitrium* humus and the shelter afforded by the hollows. *Empetrum nigrum, Vaccinium uliginosum, Salix herbacea, Thymus drucei* and less commonly *Vaccinium myrtillus, Arctostaphylos uva-ursi* and *Betula nana* grew everywhere. They were naturally much more luxuriant in the deeper hollows where I also occasionally found *Betula pubescens* and *Sorbus aucuparia.* Annuals were relatively abundant with the commonest being *Geranium sylvaticum, Cardamine pratensis, Pyrola minor, Alchemilla alpina, Bartsia alpina, Cerastium articum, Oxyria digyna, Galium verum, G. saxatile,* and *Rhodiola vulgaris* with the most outstanding rarer species being *Paris quadrifolia, Dryas octopetala* and *Parnassia palustris.*

Pteridophytes were certainly more diverse in this area than in any other I visited, although some of the species were very rare. *Huperzia selago, Cystopteris fragilis, Gymnocarpium dryopteris* and *Woodsia ilvensis* were common throughout the area, even growing within the volcano crater. I found one patch of *Lycopodium annotinum* growing in the *Rhacomitrium* and two small patches of *Phegopteris connectilis* in hollows in the block lava. Neither of them appears to have been recorded from this locality before. The most interesting species were however to be found at the edges of the lava field where the tefra from the central volcano had not covered the older lava from the much larger Snaefellsjokull volcano further west. Here in the deeper cracks and hollows I found *Dryopteris filix-mas, Athyrium filix-femina* and *D. expansa* which to me are more usually associated with temperate habitats. The presence of *Huperzia selago, Equisetum pratense, E. arvense, Cystopteris fragilis, Gymnocarpium dryopteris* and *Woodsia ilvensis* often in the same hollows, together with relatively close association of *Selaginella selaginoides* and *Botrychium lunaria* certainly made it an unusual association for me to see.

Hunting for ferns or indeed any plants on these lava fields is incredibly difficult. The view across the lava gives little indication of the numbers of hollows and cracks, nor of the numbers of species that they shelter. This means that you have to be virtually on top of the plants before seeing them, so species lists represent a combination of luck and perseverence. It was pouring with rain when I stepped on the *Lycopodium annotinum* to find a new locality for the species. I have no idea what I missed because I followed my own particular random route.

PLATYCERIUM BIFURCATUM IN THE WILD AND IN THE HOME

Ralph H Hughes

Platycerium bifurcatum (Cav.) C. Chr., better known as elkhorn fern in Australia and common staghorn fern in the United States (Hughes 1981), is highly variable in growth habit both in nature and in cultivation. A medley of garden forms are offered by the horticultural trade. The species regularly forms plantlets or "pups" from its roots, hence is easy to propagate and grow from existing plants.

This article reviews natural habitats with additional observations to aid in growing suitable cultivars indoors during seasons of the year when temperatures are below freezing. It is an abridged version of an earlier paper based on growing conditions in the author's garden at Fort Myers, Florida (Hughes 1983).

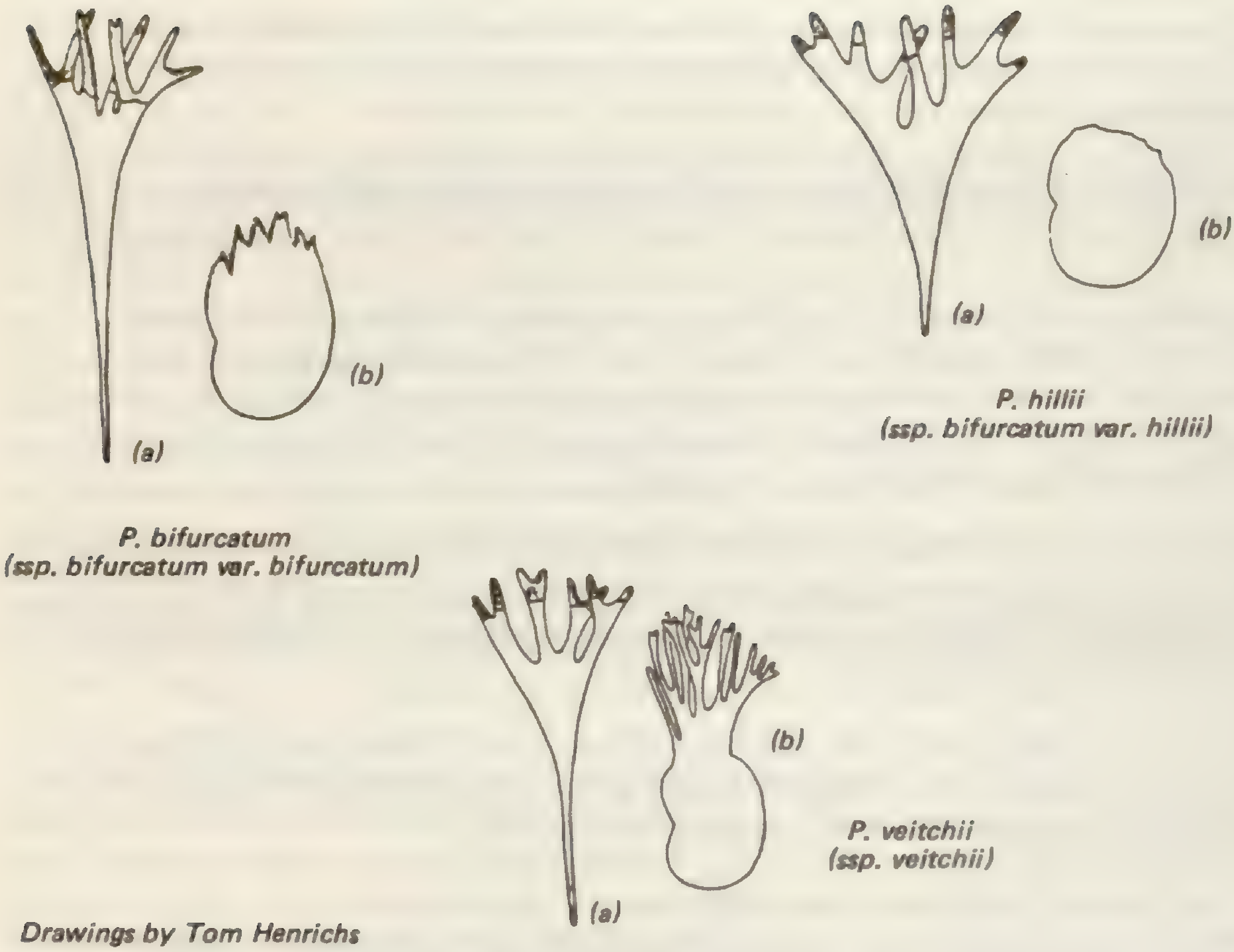
Distinguishing characteristics in Australia for the three closely related species, as observed by Jones and Clemesha (1978) follow. Also see Fig. 1. Synonyms in parenthesis denote the recent revision of the genus by Hennipman and Roos (1982).

> *P. bifurcatum* (*P. bifurcatum* ssp. *bifurcatum* var. *bifurcatum*):
> fertile fronds branching in the upper half, the ultimate segments up to 30 cm (12 in) inches long and up to 3 cm (1 in) wide; base of fertile fronds wedge-shaped; nest leaves deeply lobed.
>
> *P. hillii* (*P. bifurcatum* ssp. *bifurcatum* var. *hillii*):
> fertile fronds branching in the upper third, the ultimate segments up to 20 cm (8 in) long and to 6 cm (2½ in) wide; base of the fertile fronds broadly wedge-shaped; nest leaves shallowly lobed.
>
> *P. veitchii* (*P. bifurcatum* ssp. *veitchii*):
> the plant silvery in appearance, fronds thick and lacking protruding veins; spore patches hidden by short, fine hairs until the spores are shed.

HABITAT

The range of *P. bifurcatum* is widespread, extending in forested regions from north Queensland to southern New South Wales and Lord Howe Island. Range to the south in Australia is limited by increasingly colder temperatures, to the west by scant rainfall and low humidity, and to the north by gradual merging of one species with another. In north Queensland, merging occurs with *P. hillii* in wet lowlands, occasionally with *P. veitchii* in moderately dry bush country, and possibly with *P. willinckii* (*P. bifurcatum* ssp. *willinckii*) (not recognised as an indigenous species in Australia) in mountain rainforests where the species *per se* gradually becomes unrecognisable.

This staghorn is found to have the greatest altitudinal and substrate diversity of any Australian species. It occurs as an epiphyte in single plants to large masses atop closed canopies of rainforests, in mangroves only a few feet above salt water, on treetrunks in depauperate forests (bush country), and as a lithophyte on rough boulders and rock faces near streams when trees or other substrates are absent. With the possible exception of *P. veitchii*, *P. bifurcatum* demonstrates greatest endurance of the platyceriums to the rigors of prolonged dry seasons.



P. bifurcatum
(ssp. bifurcatum var. bifurcatum)

P. hillii
(ssp. bifurcatum var. hillii)

P. veitchii
(ssp. veitchii)

Drawings by Tom Henrichs

Fig. 1. Platycerium bifurcatum subspecies (ssp.), and variety (var.) from Australia –
(a) Fertile frond x 1/10
(b) Shield frond x 1/10

In nature, these plants prefer fairly high light intensity but tolerate moderate shade. They grow in a variety of habitats from high in the exposed crowns of rainforest trees where the plants are exposed to strong light and even direct sunshine, on trunks of trees in fairly open forests on mountain slopes and on rough rock surfaces beneath banyan trees (on Lord Howe Island).

TEMPERATURE, LIGHT AND HUMIDITY

The common staghorn fern is classified as semi-hardy in warmer temperate areas, remaining evergreen with short periods to –4°C (25°F). When high humidity is maintained, growth seems to come to a standstill only during cold snaps. It can also withstand occasional temperatures above 38°C (100°F) as long as humidity is kept high. In greenhouse culture, *P. bifurcatum* is a non-hardy fern able to co-exist with hardy ferns at 6°C (43°F) (Williams 1982). In the home, rooms kept cool – below 20°F (68°F) – support ferns better than warmer ones do, probably because extra heat means extra dry air.

Recommendations for light vary from low to medium intensities (150 to 500 foot-candles) for sown spore, 200 to 600 foot-candles for juveniles beneath artificial light, and high light (600 foot-candles or more) for larger plants (Hoshizaki 1975). Constant vigilance is needed to assure optimum lighting for individual plants whether grown indoors in artificial light, direct sunshine, or in the shade of trees, laths, painted glass, or shade cloth, the latter of different grades that give from 30 to 80 per cent shade. Juveniles, whether in the home garden or propagated commercially, benefit from gradual adaptation to increased light. Larger sporelings, divisions of adult plants, and recent imports from the wild likewise are favored by more light than is generally provided nursery stock.

Growth in size, shape and color of cultivars may be controlled to a large degree by regulating exposure to light. Sturdy, more compact plants with larger shields and fertile fronds that are more upright (less pendant) result with increased light while wider, darker leaves are enhanced by increased shading. In high light the profuse growth of stellate hairs comprises a pronounced light-silvery tomentum. Eventual form, therefore, is determined by horticultural practice.

Staghorns prefer more light in the home than many house plants. They want a bright, well ventilated spot when brought in, this preferably only as a respite from outdoor cold. If indoors yearlong, they should have full winter sunlight and curtain-filtered sunlight during the summer.

P. bifurcatum survives habitat extremes that vary from the exposed upper branches of cloud forest camopies to the rough bark and branches of drought-stricken eucalyptus trees. In colder climates staghorns will survive a combination of summer outside and winter inside in a well lighted living room (Wayland 1982). Despite lack of added humidity, they can withstand central heating in the home, where they demand less humidity than many house plants.

The exact role of atmospheric humidity in horticulture is elusive and difficult to manipulate. Factors other than humidity that affect transpiration, or water loss, from plants are air movements, air temperature, substratum conditions, growth habits of the plant, and internal factors. The drier the air, the greater the water loss. Growth ceases with temporary wilting and if suppressed long enough the plant dies. All epiphytes lack normal roots in the ground and must tolerate small and irregular supplies of water.

CULTIVATION

Established cultivars taken as pups and pot-grown juveniles are best fertilized moderately and only while actively growing. Feeding at three- or six-month intervals with slow release fertilizer is satisfactory. Prior to application of fertilizer, dead nest fronds (other than current growth) should be cut away, accumulations of litter removed, and good drainage through the substratum assured.

Although occasional dry periods of temporary wilting and retarded or no growth will not harm this staghorn, optimum growth and the best specimens are produced when watered generously. As a general rule with temperatures above 10°C (50°F) or so, plants that are actively growing may be watered at one- to three-day intervals.

During the winter indoors, watering epiphytes can be a problem. A solution is to drench plants once or twice a week in a sink or tub, then leave them to drain thoroughly before hanging them in a bright, airy place again.

Pests are seldom a serious problem outdoors. Low humidity indoors encourages red spider infestations. Their control is obtained with a miticide, as Kelthane, applied at the rate of one tablespoon per gallon of water. For disease problems with any platycerium, Jerry Horne in Miami suggests drenching the substratum with Truban and spraying the foliage with

Benlate, then placing the plant in front of a fan for several hours to dry excess moisture from the medium. The process should be repeated in ten days.

HORTICULTURAL INFORMATION

Harvested plants constitute the bulk of the market in Australia, division of stock plants is the usual mode of propagation in Florida, meristem plants are more common in the California trade, and spore culture is the practice in Europe. The trend world wide is in the direction of spore or meristem propagation. Juveniles of a 4-inch pot size or the equivalent on wood plaques with the staghorn label are sold in department stores or garden centres. For the most part, these are propagated in artificial light in a heated greenhouse, and, as a general rule, become nondescripts of the trade.

However, reputable cultivars are produced in commercial quantities by means of spores. Production for the world market is centred at Aalsmeer, the Netherlands. Small plants are available in sizes suitable for transplanting into 2- or 3-inch pots. Even with expertise in handling the plantlets and establishing them in their growing quarters, there is considerable loss. As an example, 25 of 100 twice-transplanted (2x) *P. bifurcatum* 'Netherlands' imported April 1977 had fertile fronds that averaged 75 cm (30 in) in length and shield 60 cm (24 in) in height in 1981; offsets began appearing in 1980.

Observations reveal that when grown under optimum lighting, both commercially propagated Aalsmeer sporelings and those derived from plants imported from the wild are relatively stable. However, when compared with sporelings of collected *P. bifurcatum*, those produced in Europe (*P. alcicorne* of trade and *P.* 'Netherlands') were twice larger, darker green, the fertile fronds wider and with more ultimate segments. Vegetatively grown offspring (from pups) closely resembled qualities of the parent plants. Both cultivars are prolific, pup freely, and grow rapidly in high light.

The development of choice cultivars through spore culture is at best a slow and tedious undertaking beset by pitfalls too numerous for these plants to be of interest to other than the commercial grower or confirmed hobbyist. Propagation of plants imported from the wild is a case in point. New plants from offsets were produced in about half the time needed for sporelings of equal size. Spores sown October 1978, transplanted five times and plaqued December 1980, on occasion had set new pups by December 1981. These pups were full size a year later. Looking ahead, if spore-bearing fronds are produced in 1983, elapsed time to grow to mature plants will be five years for sporelings to complete the life cycle and three years for offsets.

Where eventual size is a potential problem, as in the case of house plants, the native species and cultivars of comparable size, particularly the latter, are recommended because of their adaptability to adverse conditions and substratum limitations. Juveniles growing back to back on a hand-sized piece of treefern fiber persist several years to form a ball less than a foot in diameter. Occasional pruning of emergent leaves is desirable. *P. bifurcatum* is a gregarious species; clusters of ten to 100 plants with fronds 40 cm (15 in) in length are common in the wild. Accordingly, in cultivation pups frequently double in number annually — a single mounting on a 1-foot board in three to four years accommodates a cluster of eight to twelve plants. *P. sumbawense* of trade or *P. bifurcatum* ssp. *willinckii* cv. *Sumbawense* (Hennipman and Roos), widely distributed in the United States, is a popular cultivar that adapts to varying conditions in and out of the home.

In summary, good light, fresh air, and thorough watering are the keys to good growth of the staghorn fern, especially indoors. In colder climates, it is best treated as an epiphyte outdoors in warm weather and taken indoors when temperatures are below freezing. Even a few hours at a time outdoors is beneficial for optimum growth.

Acknowledgements:

My wife Elizabeth is spore culturist and hygienist for the platyceriums. Roy Vail contributed importantly to the literature review. I commend Phyllis Bates in the preparation of the manuscript and Tom Henrichs for the drawings.

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A HARDY HYBRID ADIANTUM

Richard Rush

In 1979 Martin Rickard gave me a division from a handsome, robust hardy *Adiantum,* which had been identified as *A. capillus-veneris* 'Mairisii'. Since easily grown, attractive and hardy (in several British gardens at least), and in a popular genus in which hardiness is exceptional and, where present, still less commonly combined with vigour in cultivation in the open, this fern is not as well-known as might be anticipated. Its upright habit, size and that it grows well in a fern border, which treatment it seems to prefer to planting in a moist shady crevice, seem surprising in a fern thought to be a variety of *capillus-veneris;* as it appears, for example, in B.J. Hoshizaki's *Fern Growers Manual* (1976). Mrs Hoshizaki (to whom I sent a frond: she agreed that it was "Mairisii", that we were talking of the same fern) and A.J. Macself, in *Ferns for Garden & Greenhouse* (1952) agree in regarding it as semi-hardy. That it is reasonably hardy is presumably a recent discovery. Nevertheless since – apparently – a cultivated variety of a native species, its omission from Charles Druery's *British Ferns & Their Varieties* (1910) and the modern books by Reginald Kaye, Roger Grounds and Philip Swindells was difficult to understand. This, I supposed, might indicate – significantly – that it had been fairly consistently uncommon.

Macself gives the name as *"Adiantum Mariesii"*. This mis-spelling has helped to obscure the fern's origins: it implies association with the plant collector Charles Maries, from which it might be inferred that it was Asian in origin. It is certain that Macself did not mean *A. mariesii* Bak. (= *A. gravesii* Hance), a species from S. China and Indochina, almost certainly tender, and of dwarf stature, and, while his descriptions are not notable for their precision (and he is not reliable in naming and orthography, though claiming strict adherence to Christensen), there can be little doubt, in this case, that he meant "Mairisii". Through reference to Christensen I'd ascertained which was the correct spelling for the garden fern, and that it had been named by Moore. I learned, thanks to Matt Busby, that the fern arose at the nursery of Mairis & Co., in England, at some time in the 19th Century, and was described and named by Moore in the *Gardener's Chronicle* of Sept. 5th, 1885. Mary Gibby, who has now checked that reference, as I hadn't contrived to do, notes that Moore described it as a hybrid, conceivably of *A. capillus-veneris* and *A. cuneatum.* That suggestion, I'd incorrectly thought, originated with Schneider, in *The Book of Choice Ferns* (1892-94).

The suggestion appeared not have been pursued. Its vigour and ease seemed difficult to reconcile with its supposed status as a *capillus-veneris* variety. If it were a hybrid, presumably with abortive spores, the creeping rhizome plus hybrid vigour could, as with *Polypodium x schneideri,* reconcile its survival in cultivation with its otherwise inexplicable relative obscurity. (Though spores have not been checked, lack of success with spores is reported).

Even after having been assured that there was no question of it being other than a variety of *capillus-veneris,* I retained doubts on the question. Some time passed before I realised that, in querying it as a *capillus-veneris* variety, I'd concentrated on the suggested *capillus-veneris x cuneatum* parentage. What if it were a hybrid, but of different parentage? Taking it that *capillus-veneris* was one, I tried to envisage a second parent which would contribute the upright habit and other features unlike *capillus-veneris* but which was not so radically different as to preclude it being mistaken for a variety of *capillus-veneris,* and which might also have been grown in a 19th Century English greenhouse. I eventually concluded that the best candidate was *A. aethiopicum,* with the probably important proviso that I had Australian *aethiopicum* in mind. Having persuaded myself of this parentage I asked Mary Gibby to examine a division from my plant, to which she very kindly agreed. She obtained a root-tip count that gave 2n = c.90. This suggests that the plant is triploid, and probably of hybrid origin. *A. capillus-veneris* is a diploid species with 2n = 60. Parentage remains, as yet, unresolved but, rather satisfyingly, Moore's original proposal, and my alternative suggestion, seem both to be plausible. The fern should be known as *Adiantum x mairisii* Moore.

I thank B.J. Hoshizaki and A.R. Busby for their help. I contributed curiosity, some persistence, and a guess. The honours clearly belong to Moore, for, as it seems to me, his prescient acuity, and to Mary Gibby, to whom I'm most grateful.

FERN GROWING COMES TO BBC TELEVISION

A R Busby

Excellent propaganda for fern growing was provided this year when the BBC Television programme "GARDENERS' WORLD" visited 'Tynant' at Moelfre, North Wales. The programme screened during the evening of Friday, 3rd June, featured an extremely attractive garden 'won' from the heavy and very stoney slopes of the Berwyns by David and Pamela Williams.

After the usual emphasis on flowers and shrubs, John Woodhams was introduced by Clay Jones and several minutes was spent discussing the value of ferns in the garden while planting up an old and rather immovable tree stump, which provided some shade and moisture. In the very few minutes available, John was able to demonstrate and discuss the various merits and forms of *Dryopteris, Blechnum, Osmunda, Athyrium* and *Asplenium.* John also introduced viewers to several foreign hardy ferns including *Onoclea, Adiantums* and the North American *Osmunda*'s.

These public spotlights, however brief, are invaluable for encouraging the gardening public to consider having a few ferns in the garden. I hope that John's excellent handling of a complex subject in just a few minutes will bear fruit and encourage people to enquire about our Society, which was mentioned at the end of the programme.

FERN CROSSWORD (solution on page 269)

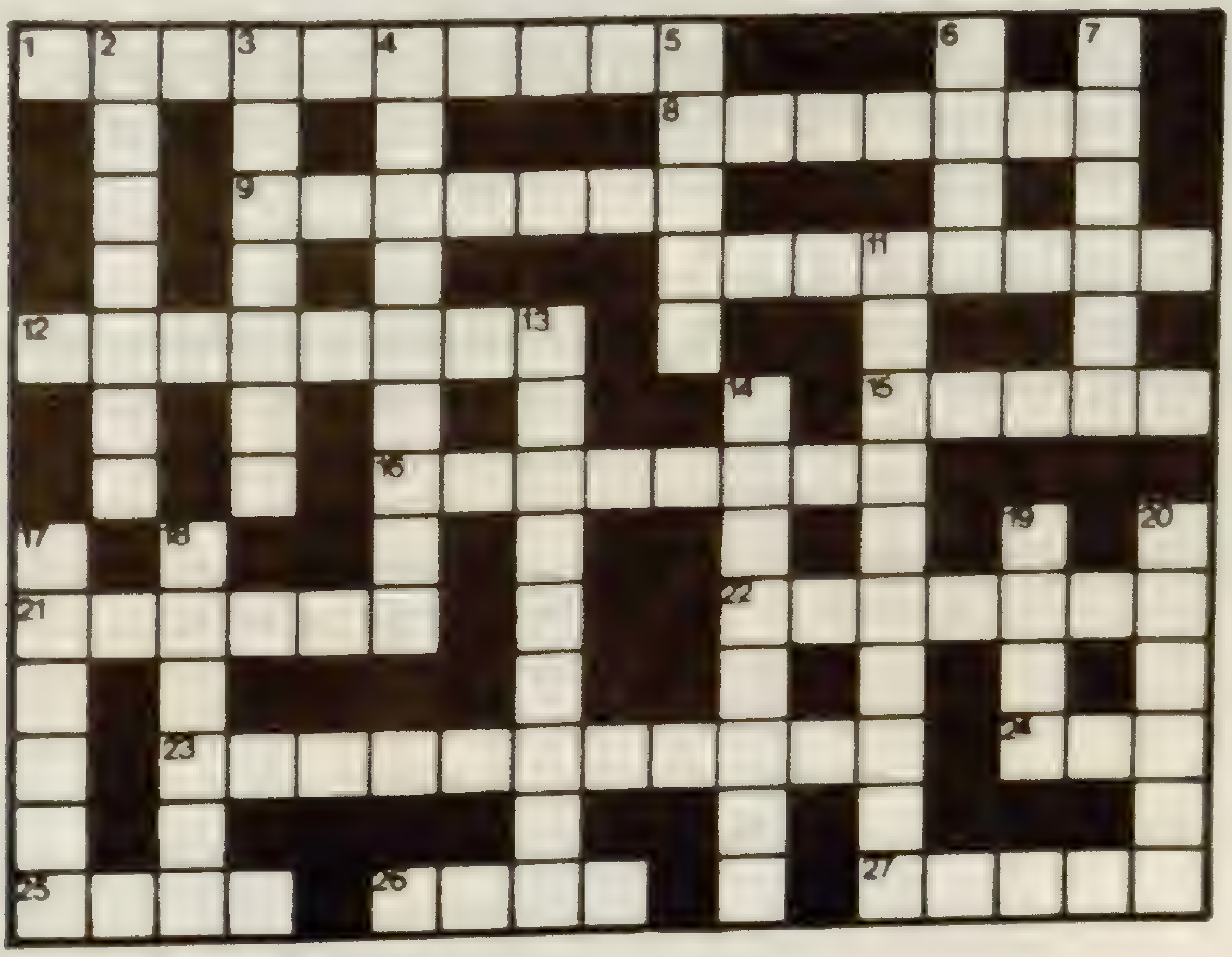
Rob Williams

ACROSS: (no. of letters in brackets)

1. Leathery as a frond may be (10)
8. Equisetum specifically in Holland? (7)
9. Genus commonly of a monarch? (7)
10. Haresfoot fern (8)
12. Spirited into Malaysian genus (8) (anag.)
15. Stem case gives plant support (5)
16. Growing on 26 – stone within reach, etc. (8) (anag.)
21. Bast in a bundle (6)
22. Heart-shaped (7)
23. Cut short 9 – Claytonia (11)
24. (See 6 Down)
25. Lycopodium and Platycerium mammal (4)
26. Fruit unpopular with ferns? (4)
27. Sharp-pointed pinna perhaps (5)

DOWN:

2. Who's trichomanes gives Matteucia the bird (7)
3. Quillworts (7)
4. Variety of Polypodium or Polystichum (9)
5. Situation of *Equisetum pratense?* (5)
6. and 24. Across – Change law rule to treat rickets (4, 3) (anag.)
7. Placed midway, I amend (6) (anag.)
11. Ride in a hat becomes male (10) (anag.)
13. Species of yielding protection (9)
14. A Cyrtomium or related to 13 (8)
17. Asexual reproductive bodies (6)
18. Woodsia species from Central Europe? (6)
19. On a fern stem, one usually jointed (4)
20. Circular in cross-section (6)



WHAT'S IN A NAME?

Gwladys Tonge

When I came to my present home nearly five years ago, one of the worst eye-sores in my extremely small garden was a lean-to garage, with a corrugated iron roof. It enclosed a galvanised rainwater tank 6′ long, 3′6″ high, jutting out 2′6″ from the wall and 4′ from the ground. After conversion to a cold greenhouse there is now a felted flat roof over the tank, and the overall measurements of the glazed structure (excluding tank) are 7′6″ x 7′6″. Because the garden is on three levels, the south-facing door is at ground level; the soil outside the west-facing wall is just below window level (window ledge 4′ off the floor), and, two-thirds of the way up the brick north wall.

The term 'lean-to greenhouse' evokes in my mind a picture of a utilitarian structure full of seed-pans and boxes of cuttings. The other lean-to greenhouse in the garden, kept by a tubular heater to 45°F in winter, is called "the conservatory", which title has spurred me on to try and justify such pretentiousness by making it look like one. But the unheated edifice over the tank, designated "the cold house" remained packed to the eaves with tiered staging, a propagating unit, flower pots, garden tools, and far too many plants in various stages of both development and demise. Constant re-arrangement of equipment and plants defied my hopes of gaining any aesthetic pleasure therefrom. The only beautiful bit was under the tank, an area 5′ x 2′6″ which I had excavated, using the floor bricks to make a low retaining wall. In a porous, peaty compost were planted two pot-bound *Adiantum capillus-veneris,* three small *Doodia aspera* and five very young and frail *Asplenium marinum.* The tank was masked by Netlon, over which climbs *Jasminum polyanthum.*

After the severe winter of '81–'82 many pelargoniums and other half-hardy plants had either perished from frost or succumbed to botrytis. But the ferns in my newly named 'grotty grotto' were almost unblemished and putting forth innumerable new fronds. I recalled the comment of a wise and highly respected gardening friend: "Interest in a garden is in no way relative to, or dependent on, size", and felt that my 'grotto' was excellent corroboration of this.

During the dark dismal post-Christmas days this year I read in Shirley Hibberd's "The Fern Garden" how he converted a modest lean-to greenhouse into a fernery. While accepting that, even had I wanted to emulate his "interior of a cave" by having the walls faced with "a rugged mass of burrs from the brickfield", space would not permit such an elaborate conversion. However, the idea of a raised bed to display ferns seemed to provide an attractive alternative to rows of pots neatly arranged on slatted staging. The success of the small bed of adiantums and doodias further convinced me that an extension of that system would answer the problem of how to make the cold house more interesting.

Once again I used bricks from the floor to make a retaining wall. The new bed is L-shaped and runs along the two outside walls. Although the area is very small an amazing amount of mixture was needed to fill it. A kind friend allowed me to fetch many sackfuls of good friable loam from her garden, to which were added granite chippings and sphagnum peat in equal proportions, plus some composted Forest Bark. The leafmould advocated by horticultural writers from Victorian times to the present day was, unfortunately, unobtainable.

The five *Asplenium marinum* have been removed from their cramped quarters under the doodias and adiantums. Small varieties of ivy have been planted to tumble over the retaining walls, and *Clematis cirrhosa* 'Balearica' to cover the back wall.

The other ferns planted include *Asplenium trichomanes* 'Cristatum': *A.t.* 'Incisum Moule', *Blechnum penna-marina* 'Cristata'. *Cheilanthes eatonii. Cryptogramma crispa, Pellaea atropurpurea, Notholaena aurea, Athyrium filix-femina* 'Crispum Grandiceps', *Polypodium vulgare* 'Trichomanoides', *Woodsia obtusa, Dryopteris affinis* 'Crispa Cristata, *Cystopteris regia.* There are also a number of selaginellas including *S. kraussiana* 'Brownii', *S. denticulata,* and *S.d.* 'Aurea'. Some year-old sporelings of *Athytium goeringianum* 'Pictum' are being nursed here too.

I am still looking for a suitable climber to grow under the roof so as not to need blinds or shading. Actually the shadow of the house protects the plants for part of the day. Meantime, some hanging baskets of variegated ivies also give some shade.

The cold greenhouse is now dignified with the name 'fernery', although it hardly deserves that title as yet. For the next few seasons I shall have a lot of pleasure adding to and subtracting from this original planting, and rearranging both ferns and ivies, ever optimistic of achieving the desired effect.

Having used a cliche as the title of this brief article I shall finish with another: "To travel hopefully is better than to arrive".

NEW ZEALAND, THE LAND OF FERNS

Barbara Parris Croxall

The silver tree-fern is New Zealand's national emblem and New Zealand is known as the land of ferns with good reason. Nearly 200 native species of ferns and fern allies occur there and, perhaps more than in any other country, ferns are a conspicuous part of town and country landscapes as well as being dominant members of the natural vegetation. A wide variety of families and genera are represented and this diversity is due to several factors. In general the climate is mild and moist, which favours fern growth, while the great range of latitude covered by the country – from c. 34° S to c. 50° S – provides for variation of the climate from north to south. Many different habitats are exploited by ferns, ranging from exposed coastal cliffs, thermal hot springs and forests (lowland, upland, montane and beech) to subalpine and alpine communities. Each habitat supports a different selection of species and within the habitats epiphytic, rupestral and terrestrial ferns occupy different ecological niches. In addition several phytogeographical elements are present: cosmopolitan, old world tropics, polynesian, Australian – New Caledonian – New Guinea, austral or circum-antarctic, Australian, and New Zealand endemic. The interaction of these factors has resulted in a variety of distribution patterns and it is of course not possible to see all of the New Zealand species in one locality, or even in one day. There are a very few places, however, where the number of habitats is so great that more than 60 species have been found in one day, a total which compares well with that to be expected during a day's collecting in the wet tropics and is much greater than the average day's fern-hunting yield in temperate regions.

In suburbia a few native species predominate; the black and the silver tree-ferns, *Cyathea medullaris* and *C. dealbata* respectively, sow themselves along damp shaded banks, while the polypodiaceous ferns *Microsorum diversifolium* and *Pyrrosia serpens* grow on rock walls and on both native and introduced trees in streets and gardens. Along country roads the black and the silver tree-ferns, together with *Dicksonia fibrosa* and *D. squarrosa* (also tree-ferns) are frequently seen in farmland, usually along the edges of drainage ditches, and the roadside banks may be covered by the scented *Paesia scaberula* in sunny sites or *Blechnum procerum* in shaded situations. The New Zealand bracken, *Pteridium esculentum,* has more slender ultimate frond divisions and more down-curved pinnae than British bracken, but like its relative can be a serious weed in pasture.

The greatest variety of fern species, however, is found in natural habitats. Here the largest and smallest ferns in New Zealand, which are amongst the largest and smallest in the world, are found. They are respectively *Cyathea medullaris,* which may have a trunk more than 15 metres tall and fronds up to 7 metres long, and *Grammitis poeppigiana,* with fronds sometimes less than 5 millimetres long. A great diversity of frond-form can also be found amongst the ferns of natural habitats, ranging from the translucent entire kidney-shaped fronds of the filmy fern *Cardiomanes reniforme,* the rush-like or fan-like fronds of *Schizaea bifida, S. dichotoma* and *S. fistulosa,* and the climbing twining fronds of *Lygodium articulatum* to *Gleichenia* and *Sticherus* species with their tiers of dichotomously branched pinnae. There are other exciting and beautiful species which are more fern-like in appearance, e.g. *Loxoma cunninghamii,* with fronds tripinnately branched and delicately coloured whitish to pale green beneath, and the finely divided *Leptolepia novae-zelandiae. Loxoma* is of particular interest to botanists because it is a genus of one species restricted to the northern part of New Zealand's North Island and is related to only one other genus, *Loxomopsis,* which contains three species all of which are restricted to Costa Rica. Together these four species comprise the family Loxomaceae.

A visitor from Britain would find a few familiar plants, however, as opposed to those mentioned above. *Anogramma leptophylla, Asplenium trichomanes, Botrychium lunaria* and *Cystopteris fragilis* are found native in both countries and a small number of British plants, e.g. *Adiantum capillus-veneris, Dryopteris filix-mas* and *Osmunda regalis* are naturalised in a few sites in New Zealand. Other New Zealand natives such as *Adiantum hispidulum, Pellaea rotundifolia, Blechnum penna-marina* and *Hypolepis millefolia* are cultivated in Britain, the first two as houseplants, the second two as hardy ferns. Other British genera will be familiar, although none of the species will be, e.g. *Polystichum, Thelypteris, Hymenophyllum, Trichomanes* and *Ophioglossum.* New Zealand is definitely a mecca for anyone interested in ferns and I highly recommend a visit if you have the opportunity!

RUSTY-BACK LORE

Anon

The other day I came across a goodly collection of the rusty-back fern among extensive slopes of scree and rock, and was reminded of the first time I ever came across it years ago, on Exmoor. Since then I have found it all over the moorlands and hills of Wales and the West, and it never fails to fascinate me. Dr Prior in his 'Popular names of British plants' (3rd ed, 1879) refers to it as "miltwaste, finger-fern, or ceterach" and revives the old story attributed to Vitruvius that in the island of Crete, between the towns of Knossos and Cortyna, flocks and herds browsing on the Cortyna side of the river Poterius lacked spleens, whereas those browsing on the Knossos side possessed spleens. This was because the valley on the Knossos side was free from the ceterach fern, whereas that on the other side was rich in it. If this can be believed, it records one of the earliest pharmacological controlled trials known. Dioscorides calls the fern *asplenon* (signifying "no spleen"), *scolopendrium,* and *hemionion* among other names, and points out accurately that it grows on walls and shady rocks. It is particularly evident in the West of England, and was first recorded in Wales in 1696.

It is probable that the vernacular term *miltwaste* (meaning spleen-destroying) arose with the doctrine of signatures, since the lobules of the plant are suggestive of the spleen. The generic name of *Ceterach officinarum* derives from an Arabic name, *chetherak,* given to this or a related species of fern. The idea, mentioned by Dioscorides and echoed by Pliny, that a decoction of ceterach leaves in vinegar taken daily for 30 to 40 days, plus the application of the leaves to the abdomen, served to overcome swollen spleen, has persisted to this day, though Pliny adds the warning that the plant causes sterility in women. William Bulleyn in his 'Book of simples' (1562) claims that "no herb maie be compared therewith for his singular vertue to help the sickness of grief of the splene." It was also celebrated as a cure for disorders of the liver and for rickets in children. As with so many herbal remedies stretching back into the remote past, there has been considerable confusion over what species the herbalist was recommending. The early attribution of ceterach to the genus *Asplenium* has meant that *A. ceterach* has been confused with *A. scolopendrium,* which has been used as a synonym for *Phyllitis scolopendrium,* which is the hartstongue fern, a quite distinct plant with a very different habitat. As Dioscorides tells us, the name *scolopendrium* was first given to the rusty-back fern because of its fancied resemblance to the scolopendra, a polychaete worm well known to the ancients. Perhaps the humble rusty-back has something of an animal appearance when come across unexpectedly. I only hope that the splenetic human race will leave it alone in its solitudes.

Reprinted from The Pharmaceutical Journal, June 25, 1983, p. 711.

NOTES ON REVOLVENS

Martin Rickard

The varietal character 'Revolvens' is not one of the most well known, and the only form commonly grown in gardens is *Dryopteris affinis* 'Revolvens'. This is a very striking plant for the fern border with fronds of a tubular appearance caused by the backwards rolled pinnae. This form of variation is sometimes also called 'Recurva', although in 'Recurva' I suspect the character is less strongly developed (See *British Fern Gazette,* Vol 4, p 78). It appears that the name revolvens applies equally to plants with backwardly curved pinnae *or* pinnules, a situation which might lead to some confusion.

In the past forms of 'Revolvens' have been described in species other than *D. affinis* but what has happened to them? Perhaps they are still cultivated somewhere, but more likely they have been lost like so many other varieties.

This was the situation as I knew it until one afternoon during the Derbyshire meeting of the *BPS* in 1980. I had split from the main party because my children were too young to appreciate the schedule set, and instead I made a leisurely exploration of a pleasant road-side valley near Buxton (I can't remember what the children did!) There, very conspicuous among thousands of perfectly normal Lady Ferns, was *Athyrium filix-femina* 'Revolvens' with the pinnae gently rolling back on themselves to form a tubular frond rather as illustrated by Druery in *British Ferns and their Varieties* (1910) p 119 – although admittedly perhaps not quite so well! This plant has since given me much pleasure and still performs well in the garden, although it has so far only produced one side crown.

In the same year, again on a *BPS* excursion, this time in the Lake District, the party came across a clump of *Dryopteris filix-mas* severely cut back but with the basal pinnae showing the revolvens character. Crowns were collected and one was even given to Reg Kaye ..... however this plant never redeveloped the character, and, as far as I can see now, is a perfectly normal *Dryopteris filix-mas*!

Bearing this sad tale in mind, when last autumn I came across a *Polystichum setiferum* in the Wye Valley showing the revolvens character I treated the find with more caution, deciding not to get too carried away! The new fronds this year have however come even better and I now think this plant is probably *P. setiferum* 'Revolvens'.

'Revolvens' has been described in *P. setiferum* before, but this was the first time I'd seen it in what hopefully will prove to be the true form. When the *BPS* visited E J Lowe's garden in Gwent in 1979 a form of 'Revolvens' with the pinnules (not pinnae) revolved was noticed. This is not such a striking form of variation and is fairly common in some species, especially *Athyrium filix-femina* when growing in exposed places – I suspect that in *A. filix-femina* this would not be constant in cultivation. The only other example of revolved pinnules I have seen was growing wild in the vicinity of Askew's old nursery in Borrowdale, again on the 1980 Lake District excursion. The pinnules were only slightly rolled back (hence perhaps 'Recurva'?) but as a variety it had a good start being a form of *D. affinis* and the slight modification of the pinnule form just served to make it that little bit different. This has proved a constant form in cultivation and I wonder if this is the *D.affinis* 'Revolvens' listed in Askew's catalogues around the turn of the century.

Plants of the 'Revolvens' type do therefore exist in cultivation and in the wild, but it seems strange to me that I should find two forms where the whole frond is revolved while apparently no-one else has found any recently. Is this because 'finds' are not reported, or are 'Revolvens' forms not considered sufficiently exciting?

Footnote: While *BPS* excursions are interesting to the botanist I hope it is apparent from the above that the amateur too can find them very rewarding. If you've never tried one, why not make an effort and come on at least one this season?

MORE ON ATHYRIUM FILIX-FEMINA 'KALOTHRIX'

Martin Rickard

Since Jimmy Dyce wrote his article on page 243 results from my spore sowing of an *Athyrium filix-femina* 'Plumosum' have become recognisable. Unfortunately I'm not sure which 'Plumosum' I sowed but the extraordinary thing is that I have raised about 50 plants of *A.f.* 'Kalothrix'. My spores might have been 'Plumosum Penny' as produced 'Kalothrix Coughlin' – but if so I don't understand why I got so many plants – I also got about 50 'Plumosum' forms. This experience fits circumstantial evidence from the last century when 'Kalothrix' appears to have been readily available to the nurserymen e.g. Stansfield, Birkenhead and Askew – and not at a too exorbitant price.

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'BIOLOGY OF PTERIDOPHYTES' SYMPOSIUM

Edinburgh University and Royal Botanic Garden
12-16 September 1983

C N Page

More than a hundred pteridologists from 22 countries gathered in Edinburgh during early September to participate in this Symposium. Organised jointly by A F Dyer and C N Page, and sponsored by the Royal Society of Edinburgh, the British Pteridological Society, International Association of Pteridologists, and the Linnean Society of London, the week, beginning on the Sunday evening with a reception hosted by our Society, promised to be a busy and stimulating one. I think that by the end, all who came had found it had been just that.

Topics discussed amongst over 60 papers presented ranged from the finer points of test-tube culture of prothalli and their development, to the habitats of ferns in tropical rain-forests; and from the economics of bracken and methods of getting rid of it, to the importance of *Azolla* in rice cultivation in the Far East. The importance of conservation for the future of ferns was also discussed. Several interesting papers were devoted to aspects of hybridisation in ferns and fern-allies, to their colonising ability and to the form and function of the pteridophyte spore. Others dealt with aspects of population dynamics in ferns – a new subject, about which I think we are going to hear very much more in future – and to the importance of understanding the complex interactions that take place between ferns through all stages of their life cycle and features of the environment, varying from culture conditions to rock and soil types, and to the existence of potential predators in the wild.

Amongst the latter, the importance of the unique biochemistry of pteridophytes became considerably apparent as an aid to the survival of the group through geologic time, whilst several welcome, and most enjoyable, palaeobotanical contributions, discussed the importance of pteridophyte floras in past geological epochs and raised the point that similar biological problems existed between ferns, animals and their environment in the past to those which we are investigating and discussing today.

Additionally, a further 80 contributions were made in display ('poster') form, adding further to the interest and diversity of the week. In the evenings the whole meeting was hosted to receptions by the Royal Society of Edinburgh and Edinburgh City Council, and Edinburgh University Principal and Vice-Chancellor reminisced on his own pteridological encounters at the Symposium Dinner. On the final evening, we ended with a Ceilidh of Scottish singing and dancing for those who still had the energy left.

This packed week of events was supported by a week's field excursion organised for the meeting by Kathryn Kavanagh and Clive Jermy, who will be reporting on that separately, but to whom our thanks must go for its parallel success.

Thanks too to our bevy of BPS helpers and Scottish members, who greatly helped ease the burden on the Organising Secretaries' shoulders throughout the week.

SOLUTION TO CROSSWORD

Across: 1. Coriaceous. 8. Hyemale. 9. Osmunda. 10. Davallia. 12. Dipteris. 15. Trunk. 16. Ceterach. 21. Phloem. 22. Cordate. 23. Interrupted. 24. Rue. 25. Stag. 26. Lime. 27. Acute.
Down: 2. Ostrich. 3. Isoetes. 4. Cambricum. 5. Shade. 6. Wall. 7. Median. 11. Antheridia. 13. Setiferum. 14. Falcatum. 17. Spores. 18. Alpina. 19. Hair. 20. Terete.

MOSS PEAT

Ron King

In June 1980 I decided to try and strike cuttings of *Cupressus sp.* 'Leylandii' in wet peat in an unheated propagator. Briefly I failed.

However, it was of interest to see that several mosses and liverworts had taken root and what looked like tiny leaves were forming. I decided to leave the propagator where it was against a north facing wall and I forgot about it until the spring of 1981. The peat was still very wet and to my delight eight ferns were growing which I potted on into 6½ inch pots containing Arthur Bowers compost and left on the patio unprotected. They survived the winter of 1981, the fronds dying back. In the spring of 1982 I placed the ferns in my unheated greenhouse where they still reside looking fine and healthy, where incidentally they remain evergreen. They have now been determined by Clive Jermy and Alison Paul as *Pteris cretica* 'Albolineata'.

As the propagator was sealed, even the vents being closed (quite by accident) the spores presumably originated from the peat. When one stops to consider the brutality of digging peat with mechanical earth movers and compressing the lot with a hydraulic ram to be squeezed into plastic bags, it would seem to be quite a miracle for anything to survive and germinate.

SOUTHPORT FLOWER SHOW – 18/20 AUGUST 1983

A R Busby

Although heavy showers on the eve of the show gave way to bright sunshine for its first day, a pall of economic gloom pervaded Southport's Victoria Park for the 54th show. Ever increasing losses, largely due to falling attendances over the last two or three shows, have placed a question mark over the future of the show.

The horticultural trade journal, the GCHTJ of July 29th, reported that the 1982 show had shown a loss of £36,000 due in large measure to the lowest attendance figure for 46 years. This has resulted in the rate-payers of the Borough of Sefton having to pick up the bill for the show's losses. The 1983 show needed an attendance figure of 110,000 to break even but it was evident that such a figure was not to be reached this year.

The 17th September edition of *Popular Gardening* reported that the 1983 show had suffered a £50,000 loss bringing the total loss for the three last years to £92,000. Now some local Councillors are calling for an end to this 'over-priced circus'.

It will be a sorry day if the Southport Flower Show ever comes to an end. No other national flower show provides the amateur fern grower with the opportunity to show ferns, it is in our interest that the Southport Flower Show should continue.

The Society's stand in Tent No. 2 provided a display of literature and ferns but because of the unavailability of hardy fern fronds, this year's stand had the emphasis on indoor ferns. A small display of various Maidenhair fern species and varieties provided by Nigel Hall and Leslie Dugdale produced a great deal of interest and comment from the passing visitors.

The quality of this year's ferns in the competitive classes was excellent in spite of the prolonged dry weather and only a very small amount of sun-scorch was evident. It was sad to see only one entry in the big display of ferns in class 7 but hardly surprising, few people can afford to grow good quality ferns in quantity these days and be able to transport them to and from Southport.

Mrs Hazel Key of Fibrex Nurseries was the fern judge.

The prize winners are listed in order of winning, as follows:

Class 7	Group of hardy British ferns arranged naturally in an area not exceeding 100 square feet R F Brookfield (one entry)
Class 8	Six hardy British ferns (dissimilar) B Russ, R F Brookfield (two entries)
Class 9	Six greenhouse ferns (dissimilar) No first prize, R F Brookfield (one entry)
Class 10	Three hardy British ferns W Kirby, B Russ, H C Shepherd (four entries)
Class 11	Three foreign ferns, hardy in Great Britain B Russ, R F Brookfield (two entries)
Class 12	Three scolopendriums B Russ, no second prize, A Shellard (two entries)
Class 13	Three polypodies R F Brookfield (one entry)
Class 14	Three polystichums No entries
Class 15	Three athyriums R F Brookfield (one entry)
Class 16	Three dryopteris No first prize, R F Brookfield (one entry)
Class 17	Three plants, gymnocarpium, phegopteris and/or thelypteris No entries
Class 18	Three aspleniums, excluding *Asplenium scolopendrium* B Russ, H C Shepherd (two entries)
Class 19	One British fern A R Busby, W Kirby, R F Brookfield (three entries)
Class 20	One greenhouse fern Mrs E A Gibbs, J R White, R F Brookfield (four entries)

The British Pteridological Society Trophy
R F Brookfield

Our stand in the societies tent (No. 2) was manned by Matt Busby, Nigel Hall and Leslie and Joan Dugdale. Unfortunately only three members came in to see us in addition to those who were at the show anyway. My thanks to Nigel, Les and Joan for their unstinting help with the show and to those members and friends who called in to say hello.

THE CONTROL OF PESTS IN FERNS

Philip Coke

Matt Busby's excellent article on pests did not mention Vapona. For several years I have found that a Vapona hung in the spring will keep the greenhouse clear of green, black and white fly throughout the summer. If the greenhouse is too large for one Vapona it can be moved about to deal with any potential outbreak. It does no damage to ferns.

LIVERPOOL '84 — AN OPPORTUNITY TO SHOW FERNS

A R Busby

During 1984, an International Garden Festival will be held in Liverpool during May—October. The Society intends to stage a display of literature and ferns during the fortnight 21st July—5th August. It is hoped that members will come and support those manning the Society stand.

Amateur competitive classes for ferns:—

Class 485 Ferns Nephrolepis; Class 486 Fern assortment (minimum number 10); Class 487 Fern assortment (minimum number 10); Class 488 Ferns exhibition plants (minimum number 3). The difference between Class 486 and 487 is unclear, but for further details of these and other classes and details of the Festival write to The Indoor Show Administrator, I.G.F. '84, Royal Liver Building, Pier Head, Liverpool, L3 1JH.

BOOK REVIEWS

FERNS FOR THE HOME AND GARDEN by Gillean Dunk, published by Angus Robertson, Australia, 1982. 128 pp. Numerous illustrations, price £4.75. This useful book by the gardening correspondent of the *Melbourne Sun — News Pictorial* is packed with useful tips for successful fern culture. There are sections on all the basic conditions for plant growth, e.g. light, atmosphere/air, soil, watering, planting, fertilization, etc., plus notes on propagation, pests and diseases and growing ferns in the garden or the house. These sections take up over half the book and are treated in sufficient detail to form a sound guide to fern growing for the beginner.

The rest of the book comprises a select list of almost 200 ferns chosen mainly because of their availability (in Australia). Each entry includes a description and brief notes of cultural requirements.

Many of the species in the select list are illustrated either in black or white or colour or both. The illustrations were for me the most fascinating part of the book. A large number of them will be familiar to many U.K. members, as they have been copied from various Victorian books, e.g. Newman's *History of British Ferns,* Britten's *European Ferns,* Sowerby's *Ferns of the British Isles* and some of Moore's books including the Octavo *Nature Printed British Ferns.* I have long thought a really good book could be constructed from these old illustrations. I congratulate the author here for choosing some of the best. Unfortunately this praise has to be tempered with some criticism at the inaccuracy of one or two of the captions, e.g. opposite page 64 *Asplenium hemionitis* is illustrated with *Asplenium scolopendrium* but only the later is named (the colour plate from Britten); on page 114 an illustration of *Polypodium vulgare* is titled *Phyllitis scolopendrium* (again from Britten). On page 119 it is good to see the fascinating woodcut of *Dicksonia antarctica* white with snow from William's *Select Ferns and Lycopods* — the very thought of tree ferns surviving climates where they get covered by snow, makes me think I really ought to be able to grow them inland in the U.K. Some hopes!

Of course, a large number of the illustrations are new, and most of the colour photographs are of plants grown by our member Chris Goudey. The plants are extremely well grown and the photographs are crystal clear. Few are of British species but I notice that a photograph of *Polystichum setiferum* 'Divisilobum' is captioned simply as *Polystichum setiferum.* This same error occured in Chris Goudey's *Exotic Ferns in Australia* reviewed last year — it therefore looks as though some confusion of nomenclature exists with *P. setiferum* in Australia. At the beginning of the book there are several colour photographs of ferns in the home, these too are of a very high quality and really show just how effective ferns are as houseplants when well grown.

All round this is a good book, it will appeal particularly to the grower of house ferns, but all fern growers and fern enthusiasts will find something in it to interest them. It could even be a very agreeable 'coffee table' book. At under £5 it is good value for money especially considering the quality of the 24 full colour plates.

Martin Rickard

GRASSES, FERNS, MOSSES AND LICHENS OF GREAT BRITAIN AND IRELAND by Roger Phillips, published by Pan Books, London, 1980. 191 pp. (76 – 117 on pteridophytes), numerous colour photographs.

This book seems to have slipped through the net of new fern books for review in the BPS journals. By now many members will be familiar with it, as it is readily available in most good bookshops along with other sister publications in the same series. As the title suggests, it covers grasses, ferns, mosses and lichens, plus some liverworts, but for the purposes of this review I will concentrate on the fern section.

Colour photographs of freshly detached fronds are included of most British species — including the allies. Where habit photographs are more appropriate these are added to, or replace, the single frond illustration. In most cases good typical material has been chosen for illustration, although I find the *Dryopteris oreades* and *D. cristata* specimens unconvincing. To me they look more like *Dryopteris filix-mas* and *D.x uliginosa* respectively. The illustrations of *Polystichum setiferum* and *P. aculeatum* are on the other hand excellent, making the differences between these two difficult species very clear. Illustrations are supplemented by very brief, but useful, notes on each species, these give an outline guide to habitat together with key diagnostic characters. A useful feature is the inclusion of the date at which each photograph was taken, but unfortunately no scale is given.

Several critical species have been omitted together with a few of the better defined species e.g. *Athyrium flexile, Asplenium billotii, Equisetum pratense, Isoetes echinospora, Lycopodium annotinum* and *Lycopodiella inundata.* Most of these are however rare and their omission detracts little from the value of the book to the beginner. Nomenclature was correct at the time of publication but inevitably there has been a change since! *Dryopteris pseudomas* is now called *D. affinis.*

My copy of this book is a soft-back edition, but I have seen a hard-back version. The former edition was selling for around £5 and at that price is a good value guide to British ferns and, of course, the grasses and principal mosses, liverworts and lichens.

Martin Rickard

OBITUARIES

It is with great regret that we have to announce the following deaths:

Miss A Kippax of Burnley, a member since 1952, who died during October 1982.

M J Turchan of Massachusetts, U.S.A., a member since 1974 who died this year.

Miss M Isobel Tetley. It is with great regret that we have to report the death of Miss Tetley in May 1982. The news reached us too late for inclusion in last year's Bulletin.

Miss Tetley, who lived at Grange-over-Sands in Cumbria, joined the Society in 1960 and right from the beginning took a very active interest in our affairs although unable to take much part in our activities. She was a most generous contributor to our funds when money was needed for various causes which required support. She attended a few meetings in the earlier years of her membership but she was advanced in years and could not lead too active a life. She lived alone but, following a stroke, her last years were spent in a home. Whenever I visited her she was always cheerful and continued to take a keen interest in our affairs.

Over the years I got to know her fairly well through visits and correspondence. The Society has lost a good friend with her passing.

J W Dyce

Mr A. Moysey Adams. Members who came to our 'Open Day' in 1981 will remember with pleasure Mr Moysey Adams, who died last year at the age of 93. He was 91 when he joined the Society and still demonstrated his keen interest and wide knowledge of ferns. He visited us again later in the year for some ferns to build up his collection. I think that there must be a lesson there for some of us who are beginning to feel our age.

I am indebted to his daughter, Mrs E. M. Turner, for some details of his very interesting life. He spent most of his working life in the tropics – mainly South and Central America and West Africa and including some little known areas of Guatemala and the upper reaches of the Amazon. His work included searching for and exporting gum suitable for chewing-gum and work with mahogany and rubber. In the course of this he became an expert on tropical trees and their associated flora. His main interest was orchids and wherever he went he made gardens with shade-houses for orchids and ferns. From Brazil he sent specimens of white Bouganvillea to Kew. After retiring he made many trips to S. Africa and became a member of the S.A. Botanical Society.

His collection has been dispersed but I am assured that the ferns have gone to good homes. It seems very sad he did not hear of our Society sooner.

Philip Coke

Rae Hoare. It was with deep regret that we learned of the death of Rae Hoare on the 15th April 1983 and we extend our deepest sympathies to her husband, Alfred, in his sad loss. Rae bore her last illness with the greatest courage and fortitude. Those members of the Society who knew her over a period of some twelve years will certainly miss her quiet cheerful presence, both at indoor meetings and at the Society's field meetings she so often attended with her husband. She was held in the highest respect by so many who will always remember her with affection.

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'N' in the margin means 'No Gazette'

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MEETINGS PROGRAMME 1984

Meetings Secretary: K P Kavanagh, British Museum (Natural History), Cromwell Road, London SW7 5BD. Tel. 01-589 6323. Ext. 797.

Meetings Committee: J W Dyce, M H Rickard, J R Woodhams and Officers.

Saturday 25 February	Annual General Meeting and Lecture Meeting to be held in the Palaeontology Demonstration Room, British Museum (Natural History), Cromwell Road, London SW7 5BD at 1415 hrs.
Saturday 10 March	*Ferns in the teaching of biology.* Symposium at Whitelands College, West Hill, London SW15 3SN at 1000 hrs.
Saturday 5 May	Visit to Royal Botanic Gardens, Kew and Soirée from 1500 hrs.
Friday/Sunday 29 June-1 July	Weekend meeting at Porlock, Somerset *Centre hotel:* Oaklands Private Hotel, Porlock. *Leader:* Peter Edwards.
Saturday/Saturday 21-28 July	Week meeting in Sligo and Donegal, Eire Suggested accommodation from the Meetings Secretary *Leaders:* Clive Jermy and Maura Scannell.
21 July-5 August	Society's display at the Liverpool Garden Festival *Project Director:* Nigel Hall.
Thursday/Sunday 9-12 August	Long weekend meeting at Bampton, nr Penrith, Cumbria *Centre:* The Crown and Mitre, Bampton Grange, nr Penrith *Leader:* Robert Sykes.
Thursday/Saturday 16-18 August	Southport Flower Show. Competitive fern classes and Society Stand.
Friday/Monday 24-27 August	Long weekend meeting at Bangor, Gwynedd. Joint meeting with the BSBI. *Centre:* Victoria Hotel, Menai Bridge, Anglesey *Leader:* Nigel Brown.
Sunday 9 September	Visit to Hidcote Manor Garden, nr Chipping Campden, Glos. Meet near main entrance at 1400 hrs. *Leader:* Matt Busby.
Saturday 20 October	Lecture meeting at the University of Aston, Gosta Green, Birmingham B4 7ET at 1430 hrs.

REGIONAL DAY MEETINGS

If you would like details of additional day meetings in the following areas, please contact the local organiser, enclosing a stamped addressed envelope.

South-west England: Christoper and Mary Potts, 4 Kennel Lane, Webbington, Nr Axbridge, Somerset. Tel. 093 472 545.

West Midlands: A R Busby, 42 Lewisham Road, Smethwick, Warley, West Midlands. Tel. 021 558 4481.

North-west England: Nigel Hall, 3 Sydney Road, Bramhall, Stockport, Cheshire. Tel. 061 440 8986.

South-east Scotland: Michael M Scott, 24 Gardners Crescent, Edinburgh EH3 8DE. Tel. 031 229 8435.

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both amateur and professional.
For further information write to:
Dept. of Forest Botany,
Faculty of Agriculture, Tokyo University, Hongo,
Bunkyo-ku, Tokyo, Japan 113.

1984 SOUTHPORT FLOWER SHOW
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Total Horticultural Prizes awarded for 1983 – Value over £120,000.
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Schedules and further information from:
The Flower Show Secretary
Dept. 11, Town Hall, Lord Street, Southport, Merseyside PR8 1DA

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